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ABSTRACT

Research has defined the various adaptive, compensatory and complementary functions of dreams. To investigate the evidence of adaptive functioning in the dream state, 30 medical students (21 males, 9 females) from St. George's University, Grenada, completed personal surveys, a waking psychological profile, and a dreaming psychological profile using the Adjective Check List (ACL), which identifies needs according to 15 scales. Subjects were instructed in dream retention techniques and subsequently completed an ACL for each dream recorded weekly during a 3-month period. An analysis of the results showed no significant correlations between the subjects' self-waking psychological profiles and the subjects' dreaming profiles on 15 adjective need scales. Nor were significant correlations found between the profiles generated by the subjects' significant others and the subjects' dreaming or waking profiles on 15 need scales created from the ACL. However, significant intercorrelations were found in the dream profiles between dominance/endurance; nurturance/heterosexuality; achievement/change; exhibition/change; endurance/abasement; and nurturance/deference. (An extensive bibliography and data tables presenting the research are included. The appendices also contain the registration and personal history form, the dream survey and the recall manual, the computer program, and the dream profiles.) (BL)

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WAKING AND DREAMING NEED PROFILES
AN EXPLORATORY STUDY OF ADAPTIVE FUNCTIONING

Robert Linton Hutchinson II

JULY 16, 1983

U.S. DEPARTMENT OF EDUCATION
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CG 017143

A Project Demonstrating Excellence submitted in partial
fulfillment of the requirements for the degree of

Doctor of Philosophy

Union for Experimenting Colleges and Universities
Cincinnati, Ohio

ABSTRACT

Aims and Theoretical Context

The aim of the study was to investigate the evidence of adaptive functioning in the dream state. Dreams have been reported in the literature as functioning in an adaptive (Adler), compensatory (Jung), complementary (Freud), or hybrid (Piaget), manner.

The objective of the research was to measure psychological needs during waking and dreaming states.

Methods

A classical experimental research design was employed testing three null hypotheses.

1. There are no significant correlations between the subjects' waking psychological profile and the subjects' dream psychological profile on 15 need scales as generated from the Adjective Check List.

2. There are no significant correlations between the psychological profile as generated by significant others and the subjects' dreaming psychological profile on 15 need scales created from the Adjective Check List.

3. There are no significant correlations between the subjects' waking psychological profile and the psychological profile as generated by the significant other on 15 need scales as created from the Adjective Check List.

A total of thirty subjects (21 males, 9 females) from St. George's University School of Medicine volunteered to participate in the experiment and agreed to meet on a weekly basis for a period of three months. Non U.S. citizens and/or subjects with a history of psychological

problems were not included in the study.

The Adjective Check List was used as the test instrument in the study. A waking psychological profile and a dreaming psychological profile were generated using the Adjective Check List for each subject. The 15 need scales were used from the Adjective Check List to generate data for the study.

Preliminary training instructions included methods and techniques for recording responses on the Adjective Check List, a dream recall enhancement manual, and methods for recording dreams.

Results and Discussion

No significant correlations were found between the subjects' self waking psychological profile and the subjects' dreaming profiles on 15 adjective need scales. Nor were significant correlations found between the profiles generated by the subjects' significant others profiles and the subjects' dreaming profiles on 15 need scales created from the Adjective Check List. No agreement between waking and dreaming psychological profiles was found.

There were however, significant correlations found between the subjects' self psychological profiles and the subjects' significant other profiles. Waking reality psychological profiles were found generally to be in agreement on need scale variables.

ACKNOWLEDGEMENTS

It is with joy that I write the acknowledgements for this project demonstrating excellence. The end product in retrospect is not as significant as the learning, growth and personal experience that this vehicle has provided for me.

During this seemingly never ending journey, a constant obstacle that I observed and encountered was that of operating with few reference points. The structure of this "vacuum" manifested in the unique form of challenges relating to physical distance, lack of resources, and difficulties in communication. Through out this entire process Beck, my wife, provided a constant perspective concerning this "vacuum" weaving a fabric of faith and perseverance that has resulted in a work of love. It is to her that this study is dedicated.

Richard Gillespie my Union Core Advisor, will remain a special person having gone far beyond his obligation as a faculty member extending support, reassurance and encouragement. Richard allowed me glimpses of the richness of his world and opened possibilities and directions that I had not perceived.

To the committee, Paul Martin, Dan Walton, Alden Klein, and Chuck Geelin, I am especially grateful for their continuous advice, suggestions and expertise that they gave so willingly.

I am thankful to my second core reader, Michael Patton for his time and attention through sharing his perspectives on methods, techniques and clarification of this research.

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I would also like to thank Betty Doujaiji for her editorial help and continued assistance in the writing of the Project Demonstrating Excellence.

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PREFACE

This document will be submitted to the Educational Resources Information Center (ERIC). The decision to submit the Project Demonstrating Excellence to ERIC is an outgrowth of the seminar in Research Methodology presented by Dr. Michael Patton and sponsored by the Union for Experimenting Colleges and Universities. The utility and access of information is an integral part of the process of research and development. If the results of any work are not accessible to individuals who can use and benefit from them, then the research has been, for all practical purposes, in vain.

Through my own literature search in the area of dreams, I discovered that less than 25% of all published dissertations on dreams in Dissertation Abstracts International (DAI) are available through current library access techniques. Through standard Interlibrary Loan procedures I found that most universities do not loan their copies of dissertations and few if any universities can afford to purchase copies of all dissertations from DAI.

University of South Florida for example, the regional library center for the southeast in the area of psychology, did not have one dissertation in the area of dreams in their collection. If a university did have a copy of the dissertation that I was interested in, and they were willing to loan it, a wait of two weeks was not unusual. If another individual was using that dissertation, the total time before I could access that information was usually over a month.

The only alternative is to purchase the dissertation from DAI (which is owned by Xerox) at a price of $30.00 plus postage per dissertation or $17.50 on fiche for a document of 1 to 100 pages. The average wait is two weeks via priority mail and a month otherwise. By comparison, the cost of an ERIC Document in microfiche is $.91 per title (up to five fiche cards - 72 pages) and $.19 for each additional fiche. Paper copy costs $2.00 for one through 25 pages and $1.65 for each additional 25 pages. This is equivalent to $5.30 for 72 pages. Documents in the ERIC system are distributed to over 700 institutions across the United States and the world. Through ERIC'S computerized system Orbit, any information within the ERIC system can be delivered to the individual within 72 hours.

The utility of my study can best be served through the presentation and delivery of a document that can be used by the greatest number of people possible. It is for these reasons that I have chosen to submit my PDE for publication in ERIC.

CHAPTER I

INTRODUCTION

This research is designed to explore the psychological profiles of medical students during their waking and dreaming states. Specifically, this investigation is performed to explore the adaptive functioning of dreams using 15 need scales from the Adjective Check List (Gough & Heilbrun, 1980b). This research in itself is but one isolated study. The importance of research is its ability to lend and build support to the literature as a whole. It is the growing wealth of data that reconfirms or offers contradictory evidence to a concept or theory. It is through contributions to the data base in the field of dreams that this study will eventually have a substantial impact on the general public's awareness of dreams and their relationship to waking reality.

Few studies by themselves alter the course and direction of a particular field of science. This too, has been the case in the field of dreams. Freud, with the publication of The Interpretation of Dreams in 1900, removed the dream from a primarily religious context of evil, sin and satanic influence to a more relevant scientific orientation. According to Jung, the concept that dreams provide guidance and prophetic insight left its place of prominence in history and fell into disrepute:

> Similarly, we see in early Christianity how the bishops zealously strove to stamp out the activity of the individual unconscious among the monks. The archbishop Athanasius of Alexandria in his biography of St. Anthony gives us particularly valuable insights in this respect. By way of instruction to his monks, he describes the apparitions and visions, the perils of the soul, which befall those that pray and fast in solitude. He warns them how cleverly the devil disguises himself in order to bring saintly men to their downfall (Jung, 1971).

In recent history through the efforts of Freud, dreams were conceived as being connected to the individual's personality rather than directed by external forces. Regardless of the specifics of Freud's theory, a quantum leap was achieved in the areas of dreams and psychology.

The identification of physiological correlates to dream activity was the next major breakthrough in dream research. Aserinsky and Kleitman (1953) discovered that approximately every 90 minutes rapid eye movements (REM) occured during sleep. When awakened during REM, individuals usually reported that they had been dreaming. Thus, another major step quickened the overall understanding of dreams. The positive correlation between physiological measurements (REM, EEG, EOG) and the occurence of dreams provided a validity for a previously non-observable occurence. Of course, these discoveries were built upon the work of others. Such preliminary studies provided the information and techniques necessary for the eventual breakthroughs to occur.

As the wealth of data in the field of dreams radically increased since the 1950's, the amount of time passing between significant discoveries has diminished (Snyder, 1967). The latest discovery that may alter the perception of dreams and their importance occured at Stanford University by Dr. Stephen LaBerge in 1981. LaBerge investigated the long standing assumption in dream research that there exists an inviolable division between conscious and unconscious processes. This protective barrier was thought to maintain separation between waking and dreaming states. The concept of bringing the waking reality consciousness into an unconscious process had not previously been considered possible. Undocumented reports of individuals becoming "lucid" or consciously aware that they were dreaming during the dream state were considered the results of mini-awakenings from REM (Foulkes, 1974). LaBerge subsequently showed that it was indeed possible to bring the waking awareness into the dream state, thus altering the conceptual frameworks of conscious/unconscious and waking/dreaming states.

It now appears possible for a lucid dreamer to conduct experiments in the dream state and to consciously report the results either through physiological means during the dream state or an oral report after awakening.

Thus, each study helps contribute to the total understanding of the function and structure of dreams.

These studies as a whole create a construct that results in the further understanding of self.

The scope of this experiment addresses the adaptive functioning of dreams. While the purpose of this study is not to promote utilization or awareness of the benefits of dreams, it is hoped that through implication, dreams will be seen as a vehicle for movement toward self-direction and understanding. Providing a view of dreams that indicates the relationship between waking and dreaming realities may allow individuals to contact unexplored areas of their lives. Feelings that have been overlooked or unresolved during waking reality show themselves in the dream state, where they can then be re-experienced and resolved (Williams, 1978). Dreamers may also find that certain situations can be dealt with more effectively during the dream state (Levay, 1979). Detailed studies will be cited in Chapter II, Review of the Literature. concerning dreams and adaptive functioning.

Having clarified the scope and implications of this research, it is helpful to turn backwards in order to examine the historical foundations from which our current views of dreams emanate. In psychology, the orientation toward the use of dreams had been that of applying static techniques of interpretation to a dynamic system. The emphasis was upon the dissection of a living process (the dream) to find meaning or significance. To accomplish this the dream was presented for analysis in a segmented, sequential form. The components of the dream were then treated as if they existed in isolation from waking reality. An analogy of this technique would be to take a random paragraph from a given book, break it down into individual words, identify the letters that compose the words, and then determine the meaning of the book based upon the analysis of the letters. To further complicate the situation, the letters are then rearranged to fit a theory that supposedly governs the relationship between the different letters.

For years this had been the preferred method used in interpreting dreams. The message to the general public was clear. The average individual was thought unable to understand or evaluate the complexities of the dream. The relationship between the dream state and waking reality was one of deception, disguise, and a dangerous area to tamper with. The dream for all practical purposes was considered a separate and isolated phenomenon that was off-limits except for the highly trained psychologist or psychiatrist.

Dreams have been a neglected part of our experience. Even though they point out conflict within our lives (Mahoney, 1966) and provide methods for creative expression (Garfield, 1974) and problem-solving (Baylis, 1977b; French & Fromm, 1964; Jones, 1970), dreams were delegated to the area of either psychopathology or parapsychology (Evidence supporting these adaptive functions of dreams is indicated later in Chapter II, Review of the Literature). Serious work with dreams was reserved for the mentally disturbed or those involved in psychoanalysis. It was generally accepted that for individuals to properly work with their dreams, an expert with years of training was necessary to correctly decode and analyze the hidden meaning within the dream report (Ullman & Zimmerman, 1979).

Rather than focusing on the continuity that existed between waking and dreaming states, early researchers hypothesized that dreams were merely compensatory in nature. This conceptual framework and not the dream itself, appears to have been responsible for many of the current attitudes and beliefs regarding dreams.

C. G. Jung in Memories, Dreams, Reflections (1961) describes this compensatory process:

> I once had a patient, a highly intelligent woman, who for various reasons aroused my doubts. At first the analysis went very well, but after a while I began to feel that I was no longer getting at the correct interpretation of her dreams, and I thought I also noticed an increasing shallowness in our dialogue. I therefore decided to talk with my patient about this, since it had of course not escaped her that something was going wrong. The night before I was to speak with her, I had the following dream.
>
> I was walking down a highway through a valley in late-afternoon sunlight. To my right was a steep hill. At its top stood a castle, and on the highest tower there was a woman sitting on a kind of balustrade. In order to see her properly, I had to bend my head far back. I awoke with a crick in the back of my neck. Even in the dream I had recognized the woman as my patient.
>
> The interpretation was immediately apparent to me. If in the dream I had to look up at the patient in this fashion, in reality I had probably been looking down on her. Dreams are, after all, compensations for the conscious attitude.

This characteristic perception asserted that dreams presented material in a coded, disguised form.

Freud (1956) believed that dreams were basically an attempt to fulfill instinctual wishes. Wishes originated in repressed and unacceptable material from the waking conscious. During sleep censorship was less vigilant and these wishes were able to be expressed. Thereby tension was released that had built up in the psychic system during the day.

To minimize the psychological damage from these censored thoughts, the dream was disguised and the meaning then hidden from the individual. Dreams allowed for the reviewing of forbidden impulses. These impulses were repressed during the day and given full rein when released from the inhibitions of waking reality.

Thus, Freud believed that the relationship between waking and dreaming states was complementary. Dreams provided a mechanism for gratification of desires and impulses repressed or suppressed during waking reality. The dream allowed for fulfillment of these wishes and preserved sleep by providing a sophisticated censoring mechanism that cushioned potential psychological trauma.

Though this concept of dreams was limited in scope and correctness in light of current neurological studies (Breger, 1967), it was the first attempt at qualifying a process of which the inner mechanisms were unknown. Freud's neurobiologically based dream theory was congruent with the current understanding of neurology around 1895. His extensive background from his medical studies, his residency in neurology and work as a researcher at the Physiological Institute of the University of Vienna was instrumental in his development of the psychoanalytic model of the mind (McCarley & Hobson, 1977).

The perception that neurons stored energy which later pressed for discharge or that there existed postsynaptic attraction of energy is not congruent with what is known in neurobiology today. Neurons do not build up energy nor does the brain operate on reflex action as asserted by Freud. If contemporary physiological concepts had been available to Freud in the late 1800s, the isomorphic, psychological models that were responsible for his psychoanalytic theory would have been drastically different than what is known today.

Current neurological evidence suggests that dreams may be involved in the synchronization of eye movements in infants, (Roffwarg, Muzio & Dement, 1966) the modification of protein structures in the brain, (Rossi, 1973) and memory consolidation (Fishbein, 1981).

Freud's royal road to the subconscious opened avenues of exploration that had been closed in the past. It also designated the use of dreams to the domain of psychopathology.

When dreams were accepted as a valid tool, they were usually viewed in the negative context of mental illness. With adults, dreams were analyzed in a cognitive manner to determine meaning and significance. The dreams were then used in a pathological context to "correct" the abnormal condition of the patient.

Other than being used in psychotherapy, dreams frequently have been considered unimportant. Individuals have been taught to regard their dreams as unreal, meaningless, and merely the result of eating too much rich food.

This may account for the difficulty many adults have in even remembering their dreams. With the cultural bias against dreaming and being taught at an early age to discount dreams as foreign and frightening, the possibility of applying and understanding the wealth of information contained in the dream state is negated. An avenue for creative expression may be effectively dammed because of attitudes passed on from generation to generation.

Anthropological evidence supports this concept (Stewart, 1972). The Senoi were a group that actively encouraged the recall of their own and their children's dreams. Their culture was located in the jungles of Malaysia. They perceived dreams as a continuation of waking reality. Experiences of the dream were incorporated into their daily life through the examination of dreams on a day to day basis and through the acting out of those dreams. Dreams that contained aggressive or hostile acts towards other members of the group were dealt with as if they had actually occured. The offending dreamer was required to give gifts to make up for any aggressive acts portrayed in the dream. Stewart believed that the lack of mental illness and the total absence of warfare in this culture was the result of their active exploration of dreams. Potential difficulties and conflicts that may have been actualized in waking reality were resolved through bringing the dream content into daily life.

Dreams can explore unresolved feelings and offer a means of clarification and resolution (Rossi, 1972). According to Sabini (1972), dreams do not, however, need to be analyzed by a professional for individuals to understand and benefit from. Dreams provide an avenue for people to deal with and to assimilate portions of themselves that are still in the process of being defined and clarified. With all of the potential benefits of dreams, people still have not been encouraged to explore their dreams on a day to day basis.

What has been lacking is the belief that there are any significant connections between the waking and dream states. This research will investigate the nature of the relationship between waking and dreaming states.

The contents of this Project Demonstrating Excellence are ordered as follows: Chapter II surveys the literature on adaptive functioning and includes theoretical and experimental approaches. The hypothesis, limitations/assumptions of the study, and the research instrument are found in the Chapter III. Chapter IV is concerned with the procedures employed in the collection and treatment of the data. Chapter V reports the results of this study and Chapter VI discusses the results and findings. The summary of this study is found in Chapter VII. Bibliography and Appendices follow Chapter VII.

CHAPTER II

REVIEW OF THE LITERATURE

The following chapter has two important functions. The first is to explore current psychological theories that view dreams as adaptive. This will provide a basic framework which explores the similarities between dreaming and waking states. The second function is to present findings of research concerning this view.

The adaptive approach views dreams as a mental activity that is continuous with the waking state. Though there are differences between day and night thoughts, dreams are a symbolic, allegorical reflection of the individual's life. The dream is a mechanism to explore possible solutions to problems that are present during waking reality. The adaptive function of dreaming asserts that there exists a functional and structural continuity between sleeping and waking states.

Researchers that concur with this view of continuity between sleeping and waking activities include Adler, Breger, Piaget, Ullman, Hall, French and Fromm.

Jung (1961) differing significantly with Adler on the meaning and methods for interpreting dreams, asserted that dreams functioned in a compensatory manner. The compensatory view asserts that dreaming functions as a process which balances conscious life and is responsible for maintaining the psyche in equilibrium. The dream from this perspective produces an alteration or adjustment in the individual by providing inverse reference points for comparison in the dream state. According to Jung,

> Every process that goes too far immediately and inevitably calls forth compensations, and without these there would be neither a normal metabolism nor a normal psyche. In this sense we can take the theory of compensation as a basic law of psychic behavior. (1974)

Originally Adler introduced the concept of compensation in psychopathology in reference to balancing feelings of inferiority. Through this supplemental process the psychological system used the inferior feelings of the individual for the development of hidden potentials and the expression of greater achievements. Jung, unlike Adler, assigned the activity of compensation to the unconscious which, he believed, was the one-sidedness of the waking personality. This one-sidedness of waking reality was thought by Jung to be a function of consciousness:

> Contents that are excluded and inhibited by the chosen direction sink into the unconscious, where they form a counter-weight to the conscious orientation. The strengthening of this counterposition keeps pace with the increase of conscious one-sidedness until finally a noticeable tension is produced. This tension inhibits the activity of consciousness to a certain extent, and though at first the inhibition can be broken down by increased conscious effort, in the end tension becomes so acute that the repressed unconscious contents break through in the form of dreams and spontaneous

images (Jung, 1971).

Freud (1956) perceived the relationship between dreams and the waking state as complementary. The thought processes of these two states were considered by Freud to be discontinuous and entirely separate systems.

The concept of adaptive function of dreaming can be seen in the light of four major ideas:

1. Dreams are significant, non-random events
2. Dreams are a continuation of the waking thought process
3. Dreams are a problem solving process that relates to waking activities
4. Dreams are a process of rehearsal for waking activity

1. DREAMS AS SIGNIFICANT, NON-RANDOM EVENTS

While there is disagreement as to whether dreams are adaptive or compensatory, both of these views support the concept that dreams are meaningful, non-random events.

Basic studies concerning the physiology of sleep have been performed to determine the various functions of dreams. Early research was performed by Eugene Aserinsky, under the direction of Dr. Kleitman, on sleep patterns through the entire period of sleep. While a graduate student at the University of Chicago, Eugene Aserinsky studied the sleep rhythms of infants. Aserinsky observed that there was a regular pattern between quiet sleep and body/ocular activity. Electrodes were attached close to the infants' eyes to record the rapid eye movement (REM). Electrodes were also attached to the skull to measure the electrical activity of the brain using the electroencephalogram (EEG). The recordings of EEG and REM were made simultaneously. It was found that EEG recordings indicating light sleep occurred most frequently when REM activity was present.

To determine more precisely the relationship between REM and the occurrence of dreaming, a follow-up study was performed by Aserinsky and Kleitman in 1953. Ten adult subjects were awakened during REM and NREM (non-rapid eye movement) periods. A total of 27 awakenings during REM were performed. Subjects reported dreaming in 20 of the awakenings during REM. The non-reporting subjects either failed to recall their dreams or had the feeling that they had dreamed but could not remember the content of their dreams. Twenty-three awakenings during NREM resulted in 19 failures at recalling any detailed dreams. Aserinsky and Kleitman conclude:

> That these eye movement, EEG pattern and autonomic nervous system activities are significantly related and do not occur randomly suggests that these physiological phenomena and probably dreaming, are very likely all manifestations of a particular level of cortical activity which is encountered normally during sleep. An eye movement period first appears about 3 hours after going to sleep, reoccurs 2 hours later and then emerges at somewhat close intervals a third or fourth time shortly prior to awakening. This method furnishes the means of determining the incidence and duration of periods of dreaming (1953).

Thus, for the first time a well defined, cyclic relationship between dreams and neurophysiological responses had been observed and documented.

Three measurements are used in recording and measuring stages of sleep. The electroencephalogram (EEG) records brain wave activity, the electro-oculogram (EOG) measures eye movement and the electromyogram (EMG) is used to assess muscle activity from the chin. Through the use of these three instruments, five stages of sleep have been defined. Dr. Fiss (1979) has outlined the principal characteristics of EEG, EOG and EMG for these stages of sleep:

> Stage W: Refers to drowsy waking state, just prior to sleep onset. EEG is characterized by "alpha" waves, which are regular in form, have a frequency of 8-12 cycles per second (cps) and a fairly low amplitude or voltage. EMG and REMs are both present.
>
> Stage 1: Also called sleep onset stage. EEG is more irregular, has a somewhat lower frequency (4-8 cps) but amplitude remains low, at 50 pv. EMG is present and so are eye movements, but these are slow eye movements and rolling.
>
> Stage 2: Most characteristic of this stage are the "spindles" - brief bursts of fast (12-14 cps) low voltage waves and "K-complexes," which are sharply rising and falling high amplitude waves. The spindles and K's are interspersed amidst an irregular, low frequency (3-4 cps) low amplitude pattern. EMG is present, but eye movements are absent.
>
> Stage 3: Contains a moderate amount (20-50%) of very low frequency (1-2 cps) high voltage (75 pv) waves called "delta." Spindles and K-complexes continue to appear occasionally. EMG is present, but there are no eye movements.
>
> Stage 4: Record is dominated by (contains more than 50%) slow, high amplitude delta waves. EMG is present, but eye movements are

not.

Stage REM: Characterized by Stage 1 EEG, bursts of rapid conjugate eye movements (REMs) and EMG suppression.

A complete cycle starts with Stage 1 and proceeds through Stages 2, 3, 4 and finally to REM and takes approximately 90 minutes. This occurs on the average of five times a night. REM is responsible for 25% and NREM 75% of the total sleep period. The first REM period lasts between 1 and 10 minutes. As the cycle progresses, less time is spent in Stages 3 and 4 with a resulting increase in REM time. The last REM period of the night may last 40 minutes or more.

On a psychophysiological level, Ernest Rossi (1973) hypothesized that while dreaming, the individual is in the process of integrating experiences from the day. This is accomplished through the synthesis or modification of protein structures in the brain. Behavior patterns are encoded within the brain creating organic constructs from which to evaluate and make decisions in waking reality. A map of external reality is approximated within the central nervous system through dreaming.

Drs. Rossi, Roffwarg, Muzio and Dement (1966) arrived at a similar conclusion. Evaluating eye movements in REM sleep, Roffwarg worked with newborn infants who were observed spending over 80% of their total sleep time in REM sleep. Roffwarg showed that REM in infants occurs before the development of the visual ability to follow any external movement. His conclusions indicated that dreaming was practice which facilitated the emergence of psychological and physiological structures. For the infant, the ability to synchronize eye movement seemed to be well-organized before the occipital lobes developed increased conductivity. This increased conductivity is necessary for the transmission of nerve impulses if visual objects are to be experienced. Roffwarg attributed this synchronization to dream functioning.

As reported by Fishbein (1981), recent studies by Drucker-Colin, Spanis, Cotman & McGaugh indicate that not only is the central nervous system active during sleep, but it is also involved in the synthesis of macromolecules during REM. In their experimental animal studies, a steel tube sheath was implanted through the skulls of cats to a length of 5 to 7 millimeters above the Midbrain Recticular Formation (MRF). The cats were also implanted with electrodes for the recording of EEG and EOG. Through the steel tube, a self contained device was inserted to study the biochemical reactions occurring in the MRF. The device was connected to an external machine which took fluid samples and measured the flow rates from the MRF.

The cats were monitored for a 21 hour period with samples taken every hour. EEG recordings were divided into hourly segments consisting of the amount of time spent awake, time in slow wave sleep and time spent in REM. They found that the level of proteins in the samples taken were cyclic and the largest proportion of proteins assayed, corresponded to those occurrences when REM was most frequent. This research suggests that dreams may be involved in the process of memory consolidation and that REM is a meaningful rather than a random occurrence.

A study was performed by Fiss, Ellman, & Klein (1969) to examine the nature of dreams. The experiment created three conditions for recording subject responses (12 normal adults) to the Thematic Apperception Test (TAT). The first complete battery of the TAT was recorded at the onset of REM. The second TAT was recorded in the middle of REM and the third TAT at the completion (75%) of REM. The objective was to measure the effects of REM prevention, REM interruption and REM completion upon TAT reports. The results of the study indicated that the subjects continued a dreamlike report into the waking state using the TAT. It also showed that this tendency was strongest during REM interruption. These TATs contained greater feelings of hostility, anger and frustration than those obtained from REM prevention and REM completion TATs. They also found that REM interrupted dreams were recalled significantly better than REM completion dreams.

The conclusions of this experiment indicated it is more disruptive to prevent an individual from completing a dream than not allowing the individual to dream at all. The need to complete a dream is more significant than the amount of time spent dreaming. This suggests that dreaming is an organized, meaningful function rather than a random, incidental process.

Ullman (1962) also supports the concept of adaptive functioning in dreams. He defined dreams as "metaphors in motion" that contribute to environmental mastery. They are symbolic expressions that bring together the emotional and perceptual responses of current problems with existing psychological structures. The function of the dream is to maintain a state of vigilance which is important for successful adaptation to the environment. Ullman believes that this constant state of preparation is in terms of responding to social or psychological dangers rather than physical attack. Information that is not accessible during waking reality is brought to the forefront during the dream. The dream is essential in the reorganizing of waking emotional, perceptual and attitudinal concepts.

Fiss and Litchman (1976) showed that dreams can be therapeutically beneficial and help prepare the individual for dealing with social situations. In their research symptom distress, anxiety, depression and insightfulness expressed during psychotherapy sessions and clinical interviews were measured. The subjects of their study were taught to focus their waking attention on their dream life through five techniques:

1. Viewing the dream in a positive manner
2. Incubation methods focusing on current problems and possible solutions
3. Use of dream laboratory recording to enhance dream recall
4. Playback of laboratory dreams the following day to maximize dream recall
5. Having the subjects reflect on the meaning of their dreams and on possible applications of the dream material to solve personal problems

This five step approach allowed for a total immersion of subjects into their dreams to determine what beneficial results could be obtained. The results indicated that dream enhancement was significantly associated with increased self-awareness and decreased psychopathology. Solutions to personal problems were facilitated through the use of dreams.

The literature from neurophysiological, psychophysiological and psychological levels of experience confirms that dreams are non-random events. Definite, well defined cyclic patterns in sleep have been identified and explored. In fact, when individuals are deprived of the REM stage of sleep, a rebound effect occurs where an increase in REM time is observed on subsequent nights (Dement 1960).

2. DREAMS AS A CONTINUATION OF THE WAKING THOUGHT PROCESS

French and Fromm's psychological theory of dreams was based on the concept of problem resolution within the context of social interaction. They believed that the dream served as a method for determining alternative solutions to current personal conflicts in an adaptive manner.

In their dream theory, ideas that were examined in the dream were not divorced from waking reality thinking. Waking cognitive structures are seen as the foundation for events and situations experienced in the dream. The dream is a form of non-verbal thinking. The dream resolves problems through taking essential, emotional feeling tones of a current dilemma and creating probable realities consisting of similar problems and solutions. These scenarios are based on past experiences and are focused on current problems in the waking present. The current conflict, through association, can be connected and related to past experiences in a successful dream experience.

The current difficulty (focal conflict) is placed within the context of the past which is the cumulative experience based on dealing with similar challenges. The psychological methods employed in the past for resolving these types of situations and events (cognitive structures) is the foundation upon which the interplay of the dream drama takes place. Thus as stated in Dream Interpretation:

> The cognitive structure of a dream is a constellation of related problems. In this constellation there is usually one problem on which deeper problems converge and from which more superficial problems radiate. This was the dreamer's focal problem at the moment of dreaming. Every focal conflict is a reaction to some event or emotional situation of the preceeding day (French and Fromm, 1964).

The first phase that the dream enters is an hallucinatory attempt to deny that a focal conflict exists. However, as the dream progresses, there is a continued attempt to resolve the focal conflict. This is accomplished through successive approximations that point to a solution that could be realistically applied during waking reality. Rather than a continuation of denial and repression, the dream acts in an adaptive manner with denial and repression being the first stage and adaptation, the last stage of the dream cycle continuum. The natural progression is towards the understanding and resolution of the current waking conflict. This is the eventual goal of the dream.

A number of studies have shown that dreams are a continuation of the waking thought process.

Cartwright (1966) compared dream and drug-induced fantasy behavior. Dreams were collected through REM-EGG sleep interruption and drug-induced fantasy content was collected during a waking 4-hour period. Subjects were injected with 3.5 milligrams of Ditran (piperidyl benzilate) and then instructed to give a running verbal account of their waking hallucinatory experience. Cartwright found that drug-induced fantasies and dreams were related. Blind matching of the dream content and hallucinatory content by a clinical psychologist was correctly made at a high level of significance. This implied that dreams can become dissociated from REM under REM interruption conditions. This would indicate that the difference in content and structure of dreams and waking fantasies is minimal. It also implies that dream like structures underlie other non-dream mental activities.

A study was performed by Fiss, Klein and Bokert (1966) in which subjects were awakened during REM and NREM. They were asked to relate a TAT story when awakened. They found that REM dreams and corresponding TAT stories were longer, contained more ideas, and were more similar than NREM correlates. It was concluded that when a REM dream is terminated, a waking fantasy (TAT story) will take on similar characteristics as the aborted dream. Their findings suggest that dreams and waking fantasies may serve a similar function.

Lastly, an experiment by Dr. Stephen LaBerge, (1980) explored the nature of lucidity and possible applications of this phenomenon. LaBerge derived a teaching strategy for the induction of lucidity. In a dream laboratory setting, the subjects were connected to EEG, EOG and EMG apparatus. The objective was to substantiate the possibility of awareness of conscious waking thought within the framework of the dream state. Dream research in the past had assumed that reported lucidity was the result of mini-awakenings from REM.

When subjects were within the dream state, they were to signal to the experimenters that they were conscious that they were dreaming and able to effect changes within the dream scenario. This was to be accomplished through squeezing their dream hand and arm muscles in Morse Code corresponding to their initials.

With equipment recording the physiological responses of the subjects, these signals were made from the dream state. Instantaneously, recordings of EMG altered reproducing the coded S.O.S. initials that the subjects were signaling using their dream dream hand and arm muscles from the dream state. The EEG, EOG and EMG recordings for the time period when the signals were given indicated that they were physiologically within the dream state.

The results of this experiment proved conclusively that lucidity was not the result of mini-awakenings but rather that it was possible to bring conscious awareness into the dream state.

The implications of this research support the concept that dreams are a continuation of the waking thought process. The dream state can exist simultaneously with cognitive structures of waking reality. The dream can maintain its structural identity with the inclusion of waking reality thinking.

Another approach in the analysis of dreams also suggests that dreams are continuous with waking reality. Calvin Hall and Robert Van de Castle (1966) devised a number of classification schemes for the content analysis of dreams. Through the application of content analysis to individuals' dreams and to the content of their thoughts while they were awake, Hall came to the conclusion that dreams were not discontinuous as purported by Freud or complementary as Jung had assumed. Hall believed that there is no alteration in personality during sleep and that the same wishes and fears that are being expressed during waking reality will determine the action and reactions of individuals during sleep (Hall, 1972).

A study was performed by Carrington (1972) using content analysis of university students' and schizophrenics' dreams. Thirty schizophrenic females and 30 female university students were compared using content analysis scales that indicated signs of psychopathology. The university students tended to have dreams relating to events and situations in their lives. The schizophrenics, however, had dreams that contained extreme elements of stress and trauma.

The results of this study are consistent with Hall's observations and Adler's conception that Freud's tension reduction theory is only observable in schizophrenic individuals. This tension reduction is a reflection of the schizophrenic's waking, everyday activities and behaviors rather than an overall function of dreams.

Many theorists regard dreams as either compensatory or adaptive in nature. Jean Piaget viewed dreams as being a hybrid incorporating both of these functions. His concept of dream functioning straddles Adlerian, Freudian and Jungian theories. Piaget believed that dreams were multipurposeful. He designated six categories to describe their relationship to waking reality (Piaget, 1962). His six categories were also applicable in the realms of unconscious symbolism and symbolic play.

On the one end of the Piagetian scale, dreams have the capacity to fulfill wishes. This concept is very similar to the Freudian concept of dream functioning. The wish fulfillment occurs according to Piaget, without secondary symbolism, which indicates that wish fulfillment occurs through unconscious assimilation. Assimilation is that process in which external reality is incorporated into psychological or biological structures by modification of external elements. The unconscious, assimilative functioning of the dream is manifested in the symbolic representation of daily experience.

Secondly, dreams are seen by Piaget as capable of fulfilling wishes through a process of conscious assimilation as opposed to unconscious assimilation. In this classification scheme, there is a direct one-to-one correspondence between dream object and waking object. The dream symbol is the same object that is being dealt with during waking reality.

In the third category, Piaget viewed dreams as having compensatory capabilities similar to Jung's perception of dream functioning. For example, events that are unpleasant to the individual during waking reality are represented and expressed in dreams as pleasurable experiences.

Nightmares occupy the fourth category. They are considered the counterparts of waking play in which fearful events are deliberately created by the individual. The function of the nightmare is to simulate, manipulate and experience situations and events that would otherwise have irreversible consequences if created during waking reality.

The fifth category is comprised of dreams that function as punishment for actions contrary to the individual's accepted perception of right and wrong.

Lastly, dreams function as direct translations of organic stimulus from waking reality. One of Piaget's examples is the child's dream of watering a garden which would correspond to a child wetting the bed in reality.

3. DREAMS AS A CREATIVE PROBLEM SOLVING PROCESS

Ullman (1965) has identified specific characteristics of creative problem solving in the dream state. These are the integration of disparate concepts into new patterns, the element of originality and the use of significant dream symbols.

The dream, rather than being a censoring device, allows for the clarification of difficulties that are being encountered. The basic personality is reflected in the dream rather than the dream compensating for deficiencies of the individual. It provides a unique system of problem solving that is without limitations in terms of possibilities and potentialities. Combinations of ideas that would have never occurred because of external constraints are explored as possible solutions rather than automatically being rejected.

Historically, a number of discoveries have been the result of creative problem solving during the dream state. Izaac Singer had worked for months trying to develop a method for automating sewing. His work was halted when he could not determine a method for attaching the needle to his sewing machine. He then had the following dream:

> I see a long row of knights, armored, dressed in iron mail. Each of them is carrying a long, sharp lance, resting them on their stirrups. What is interesting is a hole, clearly visible near the sharp end of the lances (Baylis, 1977a).

When he woke up he realized that for his sewing machine to work properly, the needle would require a hole at the pointed end rather than at the dull end as in a hand-sewing needle.

Mendeleev, a Russian scientist, conceptualized a method of categorizing the elements based upon their atomic weights during a dream. The Periodic Table of Elements was thus created and has been essentially unchanged since his discovery in 1869.

Dr. Neils Bohr, a physicist working on the theory of the atom, dreamed that he was standing on the sun. The planets were revolving around him attached to the sun by thin wires. This representation gave Bohr the inspiration for the current model of the atom.

F.A. Kekule, a chemist, had been working for years on finding a specific chemical structure. One night he dozed off in front of his fireplace and dreamed of monkeys holding each other's tails in a circle. From this dream, he discovered the benzene ring, the basis of organic chemistry.

Einstein kept notepaper by his bed to record any dreams and thoughts he had during the night. He believed that dreams provided information and insights fundamental to the understanding of nature.

Robert Lewis Stevenson often consulted his dreams for information and plots for his work. His dream "brownies" would tell him the stories that he would later write when he awoke. Strange Case of Dr. Jekyll and Mr. Hyde was one such story.

The entire poem Kubla Khan was a dream that Samuel Taylor Coleridge had. He woke up and started to write the poem verbatim. He was interrupted by the delivery of the mail and when he returned to finish the poem, he had no memory of how it ended and thus, the poem was never finished.

Clinical studies have also verified that dreams can be an important factor in problem solving. Dr. Robert Dave (1979) performed an experiment using 24 undergraduates who were at a stand still concerning either academic, vocational, or personal problems. He devised two treatment groups. One group was given conventional psychotherapy based on a cognitive, linguistic approach to creative problem solving. The second group was exposed to the induction of hypnotic dreams as their treatment modality. The results showed a significant improvement in overcoming problems using the hypnotically induced dreams within a shorter period of time than the the cognitive approach to problem solving.

Dr. Rosalind Cartwright (1974) examined problem solving skills immediately following sleep (including REM) and also during waking hours. Twenty four subjects were tested on matched problems before and after each of these two experimental conditions. Three specific problem types were given to the subjects: crossword puzzles, the Remote Association Test and story completions using the TAT. There were no significant differences in the problem solving skills on the crossword puzzles or Remote Association Test between the two experimental conditions. The TATs were, however, significantly different. After staying awake, the subjects gave stories with more successful solutions, with the main character achieving gratification at the expense of others. After sleep, the story endings gravitated towards more unsuccessful solutions from the point of view of meeting the main character's needs. Dr. Cartwright suggested that individuals may be able to identify and explore negative feelings after dreaming, possibilities that are normally avoided while awake.

The creative problem solving that occurs during the dream state shows a continuity between wakefulness and sleep. Valuable information is available rather than being disguised and hidden as hypothesized by Freud.

A study that explored the relationship between dream content and waking stress was performed by Cohen and Cox (1975). In this study undergraduate, male subjects were provided with either a positive or negative presleep condition. Before and after the experiment the subjects rated themselves on a number of mood scales. The positive presleep group was given adequate information regarding the experiment and what to expect. The negative group was treated impersonally by the researchers and made to feel incompetent.

It was predicted that the subjects who dreamed overtly or symbolically about the negative presleep condition would show the greatest improvement in mood from presleep to postsleep conditions. This hypothesis was confirmed indicating that dream content is related to the waking state.

A study by DeKonninck and Koulack (1975) also exposed subjects to presleep stress. The subjects were shown a film on workshop accidents before they went to sleep and then again in the morning. A mood scale was given to the subjects before and after the film was shown each time. Normally, a second showing of a high stress film results in less anxiety for the individual compared to their first viewing of the film. When there was REM deprivation between the first and second showing of the film, the anxiety level did not fall to the baseline anxiety (pre and post anxiety levels) of the first showing. It was also found that under these conditions, the second showing produced more anxiety than if the individual had experienced REM between showings.

Dr. Breger is another individual that supports the concept that dreams are adaptive. Using terminology and concepts based in Computer Science, Breger has constructed a theory of dream functioning and its relationship to waking reality. The basic assumption in Breger's theory of dream functioning is that dreams are a continuation of waking thoughts, feelings and attempts at problems solving (Breger, 1967).

Basic constructs that provide reference points for a memory operating system are formulated during infancy and early childhood. Once these primary patterns are established, overall flexibility within the information processing system is limited. The formulation of these patterns is based on the integration of external imagery with internal emotions. The emotions are generated through the interfacing of waking reality experiences and the primary patterns that have been and are in the process of being established. The congruency of experience and primary patterns further stabilizes the memory operating system. Discrepencies are resolved through the modification of the primary operation system or expressed as emotion.

A secondary process that is later developed for the storage and retrieval of information is based on language and analytical thinking. This becomes a method for significant input that is recorded and can be accessed in this composite memory system.

In the dream state, the brain is viewed by Breger as a central processing unit that organizes external input from waking reality into a composite memory system. Material is gathered, analyzed, synthesized and processed which then results in a mulit-dimensional model. This model can be accessed during the dreaming state at various levels of functioning. The information accumulated during waking and dreaming states is stored in separate memory locations within the brain. Each memory location can be accessed separately, dependent upon specific demands that are made by the individual in response to psychological or physiological stimulus. Internally however, the memory system acts as a continuous processing mechanism making little, if any, delineation between waking and dreaming components. Each of these levels are distinct, yet operate in synchronization with each other as parallel systems of information exchange.

The central processing system creates solutions and reactions to current situations based on how it has been programmed and organized. Thus, individuals will find themselves attempting to deal with dream events using the same modalities and degree of effectiveness as in their waking state. This is due to the fact that waking and dreaming states are continuous in nature. The processing apparatus has been designed from established patterns that control problem solving skills in both waking and dreaming states.

The dream state offers a fluid and creative framework in which consciousness interacts and derives direction from the subconscious. In dreams, the brain processes the operations of problem solving and ego functioning. Occurring simultaneously on multiple levels, the dream offers a clear perspective on content, structure and expressions of waking reality.

4. DREAMS AS A PROCESS OF REHEARSAL FOR WAKING ACTIVITY

The major proponent of the adaptive functioning of dreams was Alfred Adler (1938). Adler viewed dreams as a continuing part of the thought process. Within Adler's theory dreaming was considered to be a continuation of daily activities. Adler saw no substantial reason to make a distinction between dreams and imaginative thought. Waking and dreaming states were not seen as discontinuous or divorced areas of human experience. The major difference between these states was rather a transition of the individual's focus and perception. The shift of attention was away from external stimuli in response to internal stimuli. The thought process was not terminated with the onset of sleep. Dreams continued to work on solutions to life situations derived from waking reality.

The dream itself was seen as a symbolic representation of an individual's life style, plans and goals. Adler believed that the future was more responsible for the alteration of the present than the influence of the past. According to his theory, individuals were not permanently shaped by early childhood experiences nor were those experiences critical in the development of the individual. What was significant was the attitude toward situations and events. Rather than reacting to past experiences, the individual was seen by Adler as being motivated by the future. The dream presented a symbolic representation of probable futures for continued testing and assessment. Faulty assumptions that were blocking movement in meeting goals and objectives were identified and presented in the dream state.

Adler also believed that the dream was a method of rehearsal for waking activities. Thoughts and emotions were first integrated during the dream state before they were ever exhibited during daytime. The dream constituted a stage where the individual practiced environmental mastery. Resolution of conflicting thoughts, feelings and actions was achieved through risk taking scenarios in the dream state.

The content of the dream was an actual representation of self concept without the camoflage of daily life. During sleep, communication does not need to be oriented towards understanding by others. The individual is relatively free from external constraints and can therefore, focus exclusively on internal processes. Symbolic systems that express cognitive and affective concerns do not have to adapt to an external format. This allows for a richer and more meaningful structure and content of internal communication and expression.

A number of probable realities are created during the dream state to test their validity without the corresponding consequences that would occur if they were actualized during waking reality. The results of these probable, dream-created realities are then evaluated in relationship to the dreamer's unique life style, goals and expectations. In this manner the dream becomes a mechanism to move towards either immediate or long-range goals.

Beck (1967) examined the thematic content of daydreams and REM dreams in ten of his patients. He found that the themes of the daydreams appeared in most of the corresponding night REM dreams.

Gordon (1953) experimented with 29 psychiatric patients comparing dream responses to TAT responses using Aron's press analysis for TAT. Using 42 content variables (aggression, affiliation, dependency, etc.) he found 11 of the 42 TAT/dream correlations to be statistically significant. The dreams contained more socially unacceptable material: aggression, tension and fear as well as less depression and self-blame than the TATs. This indicated a definite relationship between the content found in dreams and content found in TAT stories.

Gold and Robertson (1975) performed a dream/fantasy content analysis of normal and psychotic children from different age and sex groups. They found that the content of psychotic children's dreams was significantly different from that of normal children. The research supports the idea that dreams and fantasies reflect stable underlying personality characteristics.

Alan Krohn and Martin Mayman (1974) performed an experiment on the object representations in dreams and projective tests. Their hypothesis was that an individual's level of object representation is internally consistent. Therefore, object representation should exhibit a similar pattern in waking and dream states.

Twenty four subjects kept a record of their dreams that were rated using the Object Representation Scale for Dreams, the Rorschach and Early Memory Scales. They found a high intercorrelation between scores assigned by the raters to the individuals in their dreaming and waking states. Their findings suggest that the waking and dreaming psychological profiles of an individual are highly related, further substantiating the adaptive function of the dream.

CHAPTER III

METHODS

HYPOTHESES

The validity of using dream material for the resolution of problems and as a vehicle for greater self understanding is based on the premise that dreaming and waking states are related. The theoretical background and experimental studies presented in the Review of the Literature (Chapter II) support the concept that there does exist a definite relationship between waking and dreaming states. The hypothesis of this study concerns the nature of this relationship.

The dream itself can be viewed as a process of uninterrupted assimilation and accomodation. These two terms were originally defined and used by Piaget in relationship to developmental mechanisms. Accomodation is the attempt to modify existing psychological structures through the dream to perform successfully in waking reality. This is most readily seen in the rehearsal aspect of adaptive functioning. Assimilation is best understood through the problem solving ability of dreams. Features that are successful in waking reality are incorporated into the dream and subsequently into psychological structures.

Dreams are representative of experiences that have important affective and cognitive meaning and impact for the individual. One of the important functions of dreams is to act as a mechanism for portraying and evaluating the experiences and feelings of waking reality. It also provides a means of organizing these experiences so that they can be assimilated and accomodated into current psychological structures.

Therefore, the dream is a processing system that integrates the affective and cognitive dimensions of waking reality. As conscious controls withdraw and the need for physical action and response decreases, this processing system is activated. This allows for the rehearsal of multiple scenarios (advanced planning) without consequences and provides probable outcomes that are evaluated.

Thus, the adaptive functioning of the dream acts as a continuous feedback loop monitoring and modifying interactions during waking reality. If this assumption is indeed correct, the psychological profile of an individual should be reflected in the dreaming and waking states with the same bias and direction within a given dimension. As there may be a significant delay between waking and dreaming processes in this adaptive feedback loop, the dreaming psychological profile has been collected as a composite. This hopefully will correct possible lag time, thereby creating a stable dreaming psychological profile over time. The content of the dream may be a direct correspondence or it may be symbolically used to represent the concerns experienced in waking reality. Regardless of the specific type of coding that occurs during the dream state, the dream is being examined as to expression of psychological needs using the ACL. The dream may indicate false self concepts, particularly if they are saturated with negative emotions about one's self.

This study examines the concept that the relationship between waking and dreaming states is adaptive in nature. The following null-hypotheses were tested in this study:

1. There are no significant correlations between subjects' waking psychological profiles and subjects' dream psychological profiles on 15 need scales as generated from the Adjective Check List.
2. There are no significant correlations between psychological profiles as generated by significant others and subjects' dreaming psychological profiles on 15 need scales created from the Adjective Check List.
3. There are no significant correlations between the subjects' waking psychological profiles and the psychological profiles as generated by the significant others on 15 need scales as created from the Adjective Check List.

CHAPTER III

METHODS

LIMITATIONS AND ASSUMPTIONS

One source of difficulty in research is the creation of and adherence to a given set of parameters. Without adequate limitations concerning the nature and scope of an experiment, the research has little application or social significance. This also is the case in defining the population to which a given study applies its research. Also there exists the problem of reliability. When an experiment is broad in scope, without proper assumptions or delineations, it becomes difficult for other researchers to duplicate and substantiate the original work.

If on the other hand, the research is extremely specific relying on the use of limitations rather than appropriate experimental structure and design, the results, though reproducible, might be meaningless. Unless the conditions of the experiment can be duplicated, approximated and in some means applied, the research has failed to contribute significantly to the world of knowledge. It is with these concerns that the limitations and assumptions of the study have been formulated.

LIMITATIONS OF THE STUDY

1. To minimize cultural variables, international students (students from countries other than the United States) were not invited to participate in the study. The implication of this selection process is that the results of the study may not be universally applicable to cultures other than that found in the United States.

This study did, however, approximate the distribution of male and female students at St. George's University, School of Medicine with 80% of the sample being male and 20% female.

Forty students originally registered to participate in the study. Thirty students completed the program. It was the data from these students that formed the results for this research. Twenty-one subjects were male with the remaining 9 subjects female. Eighty-five percent of the student body at St. George's University, School of Medicine is male and 15% female.

A 1969 study by Parker and Veldman (see Research Instrument) indicated that the ACL adjectives have a similar meaning for both males and females. The individuals of that study (5,017) were students at the University of Texas at Austin, a school comprised largely of U.S. citizens. While the ACL is universally applicable as a descriptive instrument, specific clusters of adjectives will be unique and have specific meaning to different cultural groups. It was for these reasons that the St. George's population was limited to male and female citizens of the United States.

2. Students with a history of psychiatric problems were not accepted for the study. The possible history of psychiatric problems was determined through information gathered in the personal history form that was filled out during the entry interview.

Studies have shown that dreams of normal individuals and individuals with a history of psychopathology differ in a number of significant ways. Foulkes, Larson, Swanson and Rardin (1969) studied seven normal and seven emotionally disturbed males. The dreams of emotionally disturbed individuals were more bizarre and contained more unrealistic content than those of normal subjects.

Schnetzler, Chalon, Chaleat and Pochat (1973) confirmed that there were significant differences between normal and emotionally disturbed individuals. They found that subjects with psychopathology produced fragmentary and higher anxiety dreams than normal individuals.

To eliminate the possibility that the participants of the study were in the process of working through psychological problems (and thus producing significantly different dreams than normal subjects), this limitation was adopted.

A recent attempt was made by Winget and Kramer to systematically collect and categorize dream studies. The tables that they developed were organized to include normative data, developmental information, sex differences, specialized groups, dream content and psychological measurement comparisons and laboratory studies of dream content (Winget and Kramer, 1979). The major categories developed were:

1. Census data of normal subjects in nonlaboratory studies
2. Nonlaboratory studies yielding developmental data
3. Nonlaboratory studies yielding sex differences in dream content
4. Nonlaboratory dream studies of specialized groups or subjects
5. Dream content compared with other psychological measures (Nonlaboratory)
6. Laboratory studies of dream content

By limiting the participation of subjects to those with no history of psychiatric problems, the data obtained from this research will be more readily accessible because it can be cataloged into the above mentioned dream classification scheme. This structure is the first systematic attempt to collect research and to classify it using defined parameters that would be useful for a researcher. This scheme can be used for the creation of a data base that will facilitate the referencing and analysis of dream research. In itself, this is not the determining reason for the use of a normal population in the study, but a possible benefit of limiting the participants to those with no history of psychiatric problems. This limitation also provides a homogeneous population (normal, no history of psychiatric problems) that can be used for future reference.

3. No formal or informal counseling using the subjects' dream content was attempted nor were any other psychological techniques used in advisement or counseling.

This study focused primarily on the psychological profiles generated in the waking and dream states using the Adjective Check List as the evaluative tool. The content of the subjects' dreams was not reviewed in terms of dream interpretation, analysis or application.

Dreams are an effective therapeutic tool that reveal conflicts, defenses and character traits (Fiss and Litchman 1976). Effective therapy can alter an individual's behavior and this, in turn, can alter the construct and structure of dreams. Rather than introduce an additional variable of counseling with the subjects and their dreams, this limitation was employed.

4. The sample group of the study may not be representative of the population in general. Thus, the specific target group constitutes another limitation of the study. This limitation also results in being able to classify the results under Winget and Kramer's Section 4 - Nonlaboratory dream studies of specialized groups or individuals.

St. George's University is an offshore medical institution in the West Indies. Though it is technically classified as a foreign medical school, 93% of the student body are citizens of the United States. These students, without exception, had applied to medical schools in the United States and were not accepted. As an alternative to other career choices, these rejected individuals continued toward their original goal through enrolling in the School of Medicine at St. George's University.

Beyond the demands of the rigorous medical curriculum, this has resulted in additional emotional stress including separation from friends, family and significant relationships. Students that were willing to make these sacrifices were extremely motivated and dedicated individuals. These observations have been made over a period of two years on a person to person basis and through counseling that has been performed with students.

ASSUMPTIONS OF THE STUDY

1. It was assumed for the study that it was valid to construct a dreaming personality profile through the use of the Adjective Check List.

The only available evidence suggesting that this was feasible was a study by George Domino of the University of Arizona. In 1976 Dr. Domino performed an experiment to assess the compensatory aspects of dreams. Seventy three male college students were requested to keep a dream journal for two weeks. They were administered the Edwards Personal Preference Schedule (EPPS) (Edwards, 1959) and the ACL (Gough and Heilbrun, 1965). The students had a total of 626 dreams. Sixty two students had a minimum of three dreams during this two week time period. Three dreams from each of the 62 students were randomly selected and used as data for analysis.

Five psychology graduate students acted as dream raters for the study. The 15 need scales on the ACL were used to rate the individuals' dreams. A dream rating score on each of the need scales was the result of adding the ratings of the five judges on all three dreams evaluated.

The results of the study showed a significant positive correlation between the student ACLs and the dream ratings on ten need scales: Achievement, Deference, Order, Succorance, Dominance, Nurturance, Change, Endurance, Heterosexuality and Aggression. This indicates that rather than the dream functioning in a compensatory fashion, it appears to act in an adaptive manner.

2. The second assumption of this research was that a dreaming personality profile could be created through a composite profile consisting of the individual's dream reports collected across time.

A study was performed by Dement and Wolpert (1958) in which they examined the possibility that there is a dimension within the dream that is stable over time. They analyzed the relationship of four or more dreams (REM) occurring within the same night. Eight subjects contributed 38 dreams. These were collected from awakening 15 minutes into each REM period. They found a relationship between all dreams in terms of themes or an expansion and development of the initial theme. They noted identical or similar characters, plots, actions, settings or emotions.

Another experiment was performed by Kramer, Hlasny, Jacobs and Roth (1976). They hypothesized that if dreams had significance, they would be able to distinguish 1) the dreams of different individuals, 2) the dreams of one individual on different nights and 3) the relative position of one dream within a series of dreams in one night. Three judges evaluated 50 sequences of three dreams each from 12 college students. They also evaluated 34 sequences of three dreams each from 11 male schizophrenic patients. It was found that the order of the dreams within one night could not be reliably determined. They were able to distinguish the dreams of different individuals from the total group of dreams collected and they were also able to distinguish the dreams of one individual from different nights of dream reporting.

3. Thirdly, it was assumed that the subject generated Adjective Check List was an accurate representation of the subject's personality profile on all 15 need scales.

Though substantiating this assumption was beyond the scope of this research, a second waking Adjective Check List profile was generated by a significant other. The second profile was introduced to provide a second opinion on the subject's personality profile and to see what relationship, if any, it had with the subject generated dreaming personality profile.

CHAPTER III

METHODS

RESEARCH INSTRUMENT

The purpose of this section of the Project Demonstrating Excellence is to provide a description of the research instrument that was employed in this study. An understanding of the strengths and weaknesses of the instrument will allow for a more comprehensive understanding of the results that were obtained using this instrument as a measurement tool of psychological needs.

The Adjective Check List (ACL) is a well known research instrument that, to date, has been employed in over 800 studies. The ACL was first developed at the Institute of Personality Assessment and Research in 1949. In the early stages of development the ACL was used as a technique to record the responses of researchers to participants that were being studied in the Institute's assessment programs.

The work of R. B. Cattell (1943, 1946) was the precursor to the development of the ACL. Through his studies on personality traits, Cattell developed 171 variables that could be universally applied in describing personality. Multivariate analysis of these variables resulted in the synthesis of 62 major factors. These factors were later reduced to 12 primary traits.

From Cattell's work, 125 adjectives were derived for use in the first ACL in 1949. Since that time, 175 adjectives have been added for a number of reasons. Theoretical orientations of Freud, Jung and others were examined and words that could describe personality from these specific psychological orientations were also included. Adjectives that also could be used to describe physical and interpersonal characteristics were added to round out the ACL personality instrument.

Though the ACL was originally developed for use by observers in describing others, it has evolved over the years into a tool for self-description. It is possible to identify differences and similarities between individuals and groups of individuals based on the specific test items that are chosen. The large number of adjectives presented for selection in the ACL (300), allows for the description of a broad spectrum of behaviors. Though this presents an obvious advantage to the researcher, it also presents a major obstacle. The underlying constructs responsible for the behaviors under examination are easily masked and difficult to perceive through evaluating individual responses to ACL test items.

For example, a research project may identify 100 or more statistically significant ACL test items between two sample populations. Without any conceptual delineation or grouping of these test items, psychological differences or similarities are without meaning or comprehension. This is primarily due to the large number of correlations that may be found between test items. For example, there is a significant positive correlation between carrying matches and the incidence of lung cancer in males. Significant yes, meaningful in itself, no. If this item (matches) is grouped with other items carried (such as cigarettes) to create a scale, more meaning and relevancy can be determined.

Because of this reason, scales and indices of psychologically meaningful concepts have been designed for the evaluation of the ACL test item responses. Thirty seven scales have been developed and are now used in scoring ACL protocols. These have been developed through correlating test items with existing indices from other psychological tests or based on the responses of specific groups that exhibit a known factor, such as personal adjustment (normal, abnormal groups) or military leadership (cadets in officer training school).

The ACL has found wide acceptance as a research instrument and has been used for a variety of studies. These have been compiled by Harrison G. Gough and Alfred B. Heilbrun (1980), co-authors of the ACL. The subject matter of these studies has ranged from personality stereotypes of the aging to design evaluation of commercial products.

Because of the large number of studies using this test instrument, many research projects have been undertaken to determine the internal consistency and test/retest properties of the ACL.

A study was performed on the ACL rating scales for self description by Veldman and Parker (1970). A factor analysis of the ACL was performed and eight of the highest loading test items for seven factors of self perception were identified. These test items were put in alphabetical order and presented to 713 female students in the field of education (Texas University) along with a five point scale for evaluation of these 56 test items. Factor analysis was performed on the 56 self-rating test items. The result of this analysis was the replication of the original self perception structure. This demonstrated an internal consistency, as well as test-retest stability of the ACL as a research instrument.

In another study by Miller, O'Reilley, Roberts and Folkins, (1978) the ACL was examined to determine its factor structure and scale reliability across time. The researchers were interested in examining the internal characteristics of the ACL's 24 scales. Seventy-one professional employees in a community mental health center (35 males and 36 females) comprised the population group for this study. The subjects completed the ACL twice with a one year interval between testings. The ACL was then subjected to separate factor analysis using standard varimax rotation. Computations were performed on the T scores of the 24 ACL scales. The research results showed that each of the 24 scales of the ACL had a high test-retest reliability over time.

George Parker and Donald J. Veldman (1969), examined the test item factor structure of the Adjective Check

List. The ACL's existing scales have been important in providing information used in research, diagnostic and counseling situations. This study concerned itself with the empirical analysis of the test item factor structure of the ACL and the scales that are used to measure behavioral tendencies. At the University of Texas, 5017 students (2212 females and 2805 males) took the ACL as part of their entrance requirements. Three separate 300-variable Pearson Product-Moment Correlation matrices were computed: male, female and total. Twenty five principal-axis factors were extracted and a varimax rotation of the first 10 axes were processed on a computer. This resulted in seven factors where more than two test items had their highest loadings. A second time, varimax rotation was employed (examining loadings greater than or equal to .40) and each test item was assigned to the factor it loaded most heavily upon. Factor structures for males and females were then compared. Five of the total seven factors were immediately comparable and through re-rotation of the male varimax structure, the other two factors were brought into alignment. The factor comparison for the 300 coefficients resulted in values exceeding .90 for male and female test item vectors, except for eight test items on the ACL. This analysis indicated that ACL adjectives have a similar meaning for both male and female individuals and that the factor structure between both groups is very similar.

The scoring of the ACL requires some explanation

(Gough and Heilbrun, 1980). One of the scales that is included in the ACL is Total Number of Adjectives Checked (No. Ckd). This scale is a free-floating variable in that there are no restrictions on the number of test items that are mandatory for endorsement by a subject. This allows for a more accurate and flexible representation of how individuals describe themselves. The tendency to respond in a laconic or in depth manner will influence the outcome on all scales of the ACL.

Because of this fact, there are limitations to the number of test items that can be checked (or not) without invalidating the ACL. The upper limit is 250 test items. The lower limit is 20 test items.

A secondary effect of the Number of Adjectives Checked variable is that it significantly effects the other scales of the ACL. To correct for this bias, normative data has been generated regarding the Number of Adjectives Checked and the remaining 36 ACL scales.

The subsample of males (total 5,238) included the following sources:

High school students	634
College students	936
Graduate students	621
Medical students	718
Delinquents	293
Psychiatric patients	50
Adults	1986

The female subsample (total 4,144) included the following sources:

High school students	410
College students	1124
Graduate students	336
Medical students	90

Law students	40
Delinquents	52
Adults	2092

It can be seen that the normative data used for the ACL may not represent population trends at large. It does however, indicate a diversified group in regard to age, education, occupation, intelligence and social status.

This normative data was then relegated to five homogeneous subdivisions based on the Number of Adjectives Checked:

Category	Males	Females
A	000 - 048	000 - 054
B	049 - 073	055 - 087
C	074 - 110	079 - 116
D	111 - 138	117 - 140
E	139 - 300	141 - 300

The percentage of ACL endorsed test items falling into each subdivision was: A 10%, B 20%, C 40%, D 20%, E 10%. This technique for the conversion of the raw scores to standard scores was employed to effectively correct for the influence of the Number of Adjectives Checked.

In the current study, a cluster of 15 scales was applicable and therefore employed. These 15 scales, out of the total number of scales used in the ACL, specifically address psychological dimensions. These scales (as defined in the Adjective Check List Manual) are known as the Need Scales. They are personality characteristics first identified in Murray's (1938) need-press theory of personality. To develop these 15 Need scales, 19 psychology graduate students were given

Edwards Need Scales (1954) and the 300 ACL test items. They were instructed to determine which adjectives best described the Need Scale categories they were given.

The discriminating factor used for inclusion of an ACL test item within a Need Scale was that at least nine out of the 19 judges agreed on its placement. This was arrived at to facilitate inter-judge correlation and to insure an adequate number of adjectives for each Need Scale. In the current Need Scales of the ACL, special attention has been given to minimize overlapping of test items on the 15 Need Scales. This allows for a lower number of test items on the Need Scales and a more accurate description of that particular psychological concept.

The 15 Need Scales used in this research are:

1. Achievement
2. Dominance
3. Endurance
4. Order
5. Intraception
6. Nurturance
7. Affiliation
8. Heterosexuality
9. Exhibition
10. Autonomy
11. Aggression
12. Change
13. Succorance
14. Abasement
15. Deference

The technique used in correcting the bias caused by the variable Number of Adjectives Checked was applied to all 15 Need Scales. The conversion of raw to standard scores was then performed using the normative data from the five subsample categories. This was accomplished through using the following formula:

Standard Score = (Raw Score - Mean)/ (Standard Deviation)

An in depth explanation of the statistical methods employed in this study is forthcoming in Chapter IV, Procedures. The raw score for each of the 15 Need Scales is a composite score consisting of Indicative Test Items minus the Contraindicative Test Items.

Below is a listing of the 15 Need Scales with a definition of the scale, an explanation of high and low scores of each scale and finally the indicative and contraindicative test items that comprise that scale (Gough and Heilbrun, 1980).

1. Achievement

Achievement is the desire to be outstanding in activities that have socially recognized significance.

High scores on the Achievement Need Scale indicate that these individuals are hard-working, goal-directed and are determined to be successful. The motivation to do well lies less in competitive drives and more in the need to live up to social expectations.

Low scores on the Achievement Need Scale indicate individuals who are less effective, less venturesome and less persistent than their high scorer counterparts. They are easier with and more adept in interpersonal relationships than high scorers.

Indicative items (N = 25): active, aggressive, alert, ambitious, assertive, capable, confident, conscientious, determined, dominant, efficient, energetic, enterprising, enthusiastic, forceful, independent, industrious, initiative, intelligent, opportunistic, perservering, persistent, planful, resourceful, thorough.

Contraindicative items (N = 13): apathetic, careless, distractible, easy going, indifferent, irresponsible, lazy, leisurely, quitting, rattlebrained, shiftless, slipshod, unambitious.

2. Dominance

The need to be dominant results in individuals creating and enforcing their leadership roles in groups. They also have a tendency to be the controlling and directing force in relationships.

Individuals who score high on Dominance are strong-willed, ambitious, determined and forceful. They are free from self-doubt in the pursuit of goals and are not inhibited by the disapproval of others.

Individuals who score low on Dominance lack confidence, prefer to be in the background of group activities and avoid situations that require direct competition with others or where they must assert themselves.

Indicative items (N = 19): active, aggressive, alert, ambitious, argumentative, assertive, confident, demanding, determined, dominant, enterprising, forceful, opinionated, outgoing, outspoken, resourceful, responsible, self-confident, strong.

Contraindicative items (N = 21): apathetic, dependent, dreamy, fearful, inhibited, irresponsible, lazy, meek, mild, reserved, retiring, self-pitying, shy, silent, spineless, submissive, timid, unambitious, unassuming, weak, withdrawn.

3. Endurance

Endurance is the ability to continue regardless of difficulty to meet any objective that is undertaken.

Individuals who score high on Endurance believe in duty, work conscientiously and avoid activities that are non-productive or unessential.

Individuals who score low on Endurance are changeable, easily distracted or redirected. They take things in stride and are casual individuals who take pleasure in new experiences.

Indicative items (N = 24): ambitious, conscientious, deliberate, dependable, determined, efficient, energetic, industrious, methodical, organized, painstaking, patient, persevering, persistent, planful, precise, reliable, responsible, self-controlled, serious, stable, steady, stubborn, thorough.

Contraindicative items (N= 22): absent-minded, apathetic, careless, changeable, distractible, easy going, fickle, frivolous, hasty, hurried, impatient, impulsive, irresponsible, lazy, leisurely, quitting, reckless, restless, shiftless, slipshod, unambitious, undependable.

4. Order

The Order need is concerned with neatness and organization in planning all activities.

Individuals who score high on Order look for objectivity and rationality. They have a tendency to over-control their impulses and desires. These individuals have a difficult time dealing with problems and distractions. Change is not welcome and a reliance on established patterns is preferred.

Individuals who score low on Order are less inhibited and more expressive than the high scorer. They have difficulty in working toward a long range goal and would prefer situations and activities that are orientated towards immediate gratification.

Indicative items (N = 24): conscientious, conservative, deliberate, efficient, foresighted, formal, fussy, industrious, inhibited, logical, methodical, organized, painstaking, perservering, persistent, planful, precise, rational, reliable, rigid, self-controlled, steady, thorough, thrifty.

Contraindicative items (N = 16): absent-minded, careless, changeable, confused, disorderly, forgetful, hasty, impulsive, irresponsible, rattlebrained, reckless, shiftless, slipshod, spontaneous, undependable, zany.

5. Intraception

Intraception is the desire and attempt to understand one's own motivations and/or the behavior of others.

Individuals who score high on Intraception are logical, systematic, valuing intellectual and cognitive matters over the understanding and reliance on affective skills .

Individuals who score low on Intraception have a narrow range of interests and have a difficult time coping with stressful situations.

Indicative items (N = 23): alert, calm, clear-thinking, considerate, curious, fair-minded, foresighted, forgiving, imaginative, insightful, intelligent, logical, mature, methodical, rational, reasonable, reflective, sensitive, serious, sympathetic, thoughtful, tolerant, understanding.

Contraindicative items (N = 9): distrustful, fault-finding, hard-hearted, indifferent, intolerant, opinionated, self-centered, shallow, suspicious.

6. Nurturance

Nurturance is the ability to engage in behaviors that provide material or emotional benefits to others.

Individuals who score high on Nurturance like to work with people and have a cooperative, social disposition. They are sympathetic and supportive of others and themselves.

Individuals who score low on Nurturance avoid any close ties or meaningful relationships. They are distrustful of others and believe the worst of others' intentions.

Indicative items (N = 24): affectionate, appreciative, considerate, cooperative, dependable, forgiving, friendly, generous, gentle, good-natured, helpful, kind, outgoing, peaceable, sentimental, sociable, soft-hearted, sympathetic, thoughtful, tolerant, trusting, understanding, unselfish, warm.

Contraindicative items (N = 22): aggressive, aloof, arrogant, autocratic, bitter, cynical, distrustful, egotistical, fault-finding, hard-hearted, hostile, impatient, indifferent, intolerant, rude, sarcastic, self-centered, self-seeking, selfish, snobbish, stingy, unkind.

7. Affiliation

Affiliation is the need to establish and maintain many personal relationships.

Individuals who score high on Affiliation are comfortable in social settings, like to be with people and adapt easily in a group situation. These individuals take people and events at face value without examining inner reasons that may be responsible for their behaviors.

Individuals who score low on Affiliation question the meaning of relationships and fear involvement. The underlying current of anxiety makes participation in social interaction difficult.

Indicative items (N = 34): active, adaptable, appreciative, attractive, cheerful, confident, considerate, contented, cooperative, curious, daring, energetic, good-natured, initiative, kind, loyal, mannerly, mature, mischievous, optimistic, peaceable, pleasant, poised, praising, relaxed, self-controlled, sociable, talkative, thoughtful, trusting, understanding, versatile, warm, wholesome.

Contraindicative items: none

8. Heterosexuality

Heterosexuality is the need to establish relationships and interactions with members of the opposite sex.

Individuals who score high on Heterosexuality respond positively to interpersonal encounters and like the company of the opposite sex.

Individuals who score low on Heterosexuality keep members of the opposite sex at a distance and fear the challenges of interpersonal relationships.

Indicative items (N = 20): adventurous, affectionate, attractive, charming, emotional, excitable, feminine, flirtatious, friendly, good-looking, handsome, healthy, masculine, natural, outgoing, pleasure-seeking, sexy, sociable, uninhibited, warm.

Contraindicative items (N = 12): aloof, apathetic, cold, cool, despondent, effeminate, inhibited, prudish, queer, simple, unemotional, withdrawn.

9. Exhibition

Exhibition is the need to behave in such a manner as to elicit the immediate attention of others.

High scores on Exhibition indicate individuals who are forceful and manipulative. They are impatient and must be the center of attention in all situations.

Individuals who score low on Exhibition are cautious and withhold contributions they could make in a group situation. They tend to avoid conflict and lack confidence in their abilities and skills.

Indicative items (N = 26): affected, argumentative, arrogant, assertive, boastful, clever, conceited, egotistical, humorous, immature, jolly, loud, noisy, obnoxious, opinionated, outgoing, outspoken, self-centered, self-seeking, sharp-witted, show-off, sociable, talkative, unconventional, uninhibited, witty.

Contraindicative items (N = 20): apathetic, conservative, conventional, discreet, indifferent, inhibited, meek, mild, modest, quiet, reflective, reserved, retiring, self-denying, shy, silent, submissive, timid, unassuming, withdrawn.

10. Autonomy

Autonomy is the need to act independently of either social values or the expectations of others.

Individuals who score high on Autonomy are not only independent of others and social institutions but are also assertive and self-willed. They tend to be indifferent to the feelings of others.

Individuals who score low on Autonomy prefer situations where they are directed by others. They gravitate towards routine, avoid risks and have a need for security.

Indicative items (N = 29): adventurous, aggressive, aloof, argumentative, arrogant, assertive, autocratic, confident, cynical, dissatisfied, egotistical, fault-finding, frank, hard-headed, headstrong, hostile, independent, indifferent, individualistic, irresponsible, opinionated, outspoken, rebellious, self-centered, self-confident, tactless, unconventional, undependable, uninhibited.

Contraindicative items (N = 15): cautious, conventional, cooperative, dependable, dependent, meek, moderate, obliging, self-denying, spineless, submissive, suggestible, tactful, timid, tolerant.

11. Aggression

Aggression is the need to attack or hurt others.

Individuals who score high on Aggression view others as enemies that must be conquered. They are competitive with a tendency towards immediate actions without regard to social consequences.

Individuals who score low on Aggression are patient, avoid conflicts at any cost and make few demands of others.

Indicative items (N = 21): aggressive, argumentative, arrogant, assertive, autocratic, cynical, dominant, excitable, forceful, headstrong, hostile, impatient, irritable, opinionated, outspoken, quarrelsome, rebellious, sarcastic, touchy, unkind, vindictive.

Contraindicative items (N = 23): apathetic, calm, good-natured, inhibited, mannerly, meek, mild, obliging, patient, peaceable, praising, quiet, relaxed, reserved, retiring, shy, silent, submissive, sympathetic, timid, understanding, unemotional, withdrawn.

12. Change

The need for Change involves the avoidance of routine and the exploration of the new or unknown.

Individuals who score high on Change are perceptive, spontaneous and prefer variety. They seek challenges in disorder and chaos.

Individuals who score low on Change prefer things to be clean, neat and orderly. They avoid risk and try to exert total control over their environment.

Indicative items (N = 20): active, adaptable, adventurous, changeable, curious, daring, dissatisfied, distractible, enthusiastic, fickle, impulsive, independent, individualistic, initiative, interests wide, pleasure-seeking, restless, spontaneous, unconventional, unstable.

Contraindicative items (N = 16): apathetic, conservative, contented, conventional, inhibited, interests narrow, methodical, persistent, planful, retiring, rigid, self-denying, stable, steady, stolid, withdrawn.

13. Succorance

Succorance is the need to solicit sympathy, affeccion, or emotional support from others.

Individuals who score high on Succorance feel inadequate in coping with stressful situations. They tend to fantasize and avoid confrontations.

Individuals who score low on Succorance are self-confident, act independently of others and are effective in planning and meeting objectives.

Indicative items (N = 21): appreciative, complaining, demanding, dependent, dissatisfied, emotional, fearful, immature, infantile, meek, nervous, self-centered, self-pitying, self-seeking, selfish, spineless, submissive, trusting, weak, whiny, worrying.

Contraindicative items (N = 11): aloof, confident, dominant, independent, indifferent, individualistic, mature, quarrelsome, self-confident, strong, tough.

14. Abasement

Abasement is the expression of inferiority through self-criticism, guilt, or social impotence.

Individuals who score high on Abasement are submissive to the demands of others and ask nothing for themselves. Their relationships are constantly being challenged by their own worries and fears.

Individuals who score low on Abasement are self-confident and assertive. They are competent, efficient and demand their rights.

Indicative items (N = 25): anxious, confused, cowardly, despondent, emotional, fearful, gloomy, inhibited, meek, mild, modest, obliging, pessimistic, retiring, self-denying, self-pitying, self-punishing, sensitive, shy, spineless, submissive, suggestible, timid, weak, worrying.

Contraindicative items (N = 17): aggressive, arrogant, assertive, boastful, bossy, confident, dominant, egotistical, forceful, hard-headed, headstrong, independent, opinionated, rebellious, self-confident, strong, stubborn.

15. Deference

Deference is the need to establish subordinate positions and roles in relationship to others.

Individuals who score high on Deference are patient, conscientious and unassuming. They prefer anonymity and the avoidance of conflict rather than winning interpersonal battles.

Individuals who score low on Deference prefer competition, taking risks and defeating others. They are impulsive and prefer conflict with others.

Indicative items (N = 19): anxious, appreciative, cautious, conservative, conventional, cooperative, gentle, helpful, inhibited, mannerly, mild, obliging, peaceable, praising, sensitive, spineless, submissive, suggestible, timid.

Contraindicative items (N = 25): adventurous, aggressive, argumentative, arrogant, assertive, autocratic, boastful, bossy, conceited, daring, demanding, forceful, headstrong, impulsive, independent, individualistic, opinionated, original, outspoken, rebellious, reckless, snobbish, tactless, unconventional, uninhibited.

CHAPTER IV

PROCEDURES

COLLECTION OF DATA

The purpose of this section of the Project Demonstrating Excellence is to introduce the specific methods that were employed in collecting the data for the study. This will allow for other researchers to duplicate or modify the study and the research design for further exploration.

In August, 1982, students at St. George's University, School of Medicine, Grenada, West Indies, were invited to participate in the study. An announcement of the experiment, along with a registration sheet, was posted on the University's Grand Anse and True Blue campuses. The registration sheet (Appendix 1) allowed for a maximum of 40 participants. This number was arrived at through a preliminary study from the preceeding semester. It was determined that a 20 to 25 % attrition rate could be expected from medical students participating in this type of extracurricular activity.

Forty medical students signed up for the experiment with 31 students eventually completing the study. A 25% attrition rate was realized.

The terms of the experiment were made explicit at the beginning of the study. All participating students were to have scheduled access to the computerized MSKP Review for 1/2 hour per week. With this agreement, students were scheduled Monday through Friday from 9:00 A.M. to 3:00 P.M. for the entire semester (August through December).

The MSKP Review (Medical Science Knowledge Profile) is a computer assisted instructional network that I developed during my counseling internship at St. George's University, School of Medicine. The MSKP Test is a qualifying examination required of foreign medical students upon completion of their pre-clinical curriculum. As such, students are highly motivated to perform well on this examination. In lieu of paid volunteers for the study, students exchanged their time for participating in the research for time on the computer.

Individual appointments were scheduled for participants involved in the study. During the entry interview, the following eight objectives were met:

1. Collection of biographical data
2. Collection of dream and sleep profiles
3. Identification of "significant others"
4. Administration of the Adjective Check List
5. Instruction in dream collection
6. Adjective Check List recording methods
7. Instruction in dream retention techniques
8. Scheduling of weekly appointments

1. Collection of biographical data

The biographical data collection sheet asked basic information (Appendix 2) of the subject. Through obtaining a personal history, it was determined if the subject had any background of psychological problems. If this condition had been detected, the subject would not have been included in the study. None of the 40 subjects interviewed indicated that they had any history of psychological problems.

All subjects were assigned an identification number. All records and permanent folders for that individual were accessed using that number. A computerized filing system (Filemanager 800) was used to monitor the subject's progress in completing dream reports and the submission of appropriate forms.

2. Collection of dream and sleep profiles

The subjects also completed a dream and sleeping profile during the entry interview (Appendix 3). This was given to the subjects for two reasons. First, it was given to gather additional information on medical students' dreaming and sleeping habits. Secondly, it was used to provide a guide for the subject regarding dreams. For the participant, this provided a platform for further discussion and explanation concerning dreams and dreaming.

3. Identification of "significant others"

During the entry interview, the subjects identified a "significant other." This spouse, friend, or acquaintance had the characteristic of being able to describe the subject more accurately than any other individual at St. George's University. The "significant other" was contacted at a later date. An appointment was made with the "significant other" and he/she was administered the ACL. They were instructed to check all of the adjectives that best described the corresponding subject that had identified them as a "significant other."

By generating a waking ACL profile created by a "significant other," another perspective of the subject's personality was made available for examination. This provided additional information used in evaluating the relationship between waking and dreaming ACL profiles.

As a population the significant others consisted of either spouses, girl or boy friends of the subject, all of whom were living in Grenada, West Indies. Their ages ranged from 21 to 35. All were American citizens. The spouses comprised 33% of the significnt others while the girl or boy friends were the remaining 66%.

Functionally, the population of significant others was designed to provide an external profile of the subject. In as much as the Adjective Check List was originally designed for use with observers in the description of others (Gough & Heilbrun, 1980b), the significant others were utilized as a third view in an exploratory capacity. The intent was to explore the relationship, if any, between the significant other profile and the subjects' dreams.

By incorporating a third element into the research design in the use of the significant other, a platform for further research was established.

4. Administration of the Adjective Check List

The administration of the ACL was the first objective met during the entry interview. Subjects were given the ACL sheet that consists of 300 adjectives and marked it either male or female appropriately. The subjects were then instructed to choose all the adjectives that best described themselves and were given 15 minutes to complete the task. After the subject completed the ACL, the form was tagged with a number and filed.

5. Instruction in dream collection

All dream reports recorded by subjects were home dream reports. A set of guidelines concerning the recording of dream reports was given to the subjects. The following guidelines were instituted to assure that the dream reports were being recorded systematically by all subjects:

A. All dream reports should be handwritten and no other means for recording should be employed.
B. Only the first dream remembered within the first 10 minutes after waking up should be recorded.
C. The dream report should be written within the first hour after waking up.
D. Only one dream per day should be recorded.
E. If more than one dream is recalled in the morning, record only the first dream that was remembered.
F. The dream report should be recorded in the present tense and in as much detail as possible.
G. Do not include any of your present thoughts or feelings regarding the content or interpretation of the dream within the dream report.
H. Record the first dream remembered in the morning regardless of its brevity or its longevity.

These guidelines were developed to standardize the collection of dream reports by subjects.

6. Adjective Check List recording methods

The sixth objective dealt with the procedure for filling out the ACL in conjunction with every dream report recorded. Each dream report was written on the back of the corresponding ACL form. The subjects were instructed to read the dream through a second time to identify all the symbols within the dream. Dream symbols were designated as nouns: persons, places, or things. Subjects were then asked to examine each symbol as to its nature, its interaction within the dream setting and the overall function of the symbol.

Only one ACL form was used to evaluate each dream report. All symbols that were contained within a given dream report were evaluated. Responses to these symbols were recorded on one ACL form. This was accomplished by subjects considering each and every symbol within the dream report and checking all the adjectives on the ACL that best described that particular symbol. If an adjective was used only once to describe a symbol during the reporting of an individual dream report, the box to the left of the adjective was checked only once.

Multiple entries, or checking the same adjective to describe two or more symbols within the same dream report, was an occurrence that subjects were concerned with. This was handled through placing multiple checkmarks in the block to the left of the adjective chosen - one checkmark per symbol.

In this manner, a dreaming psychological profile was generated using each dream. The data was considered complete when the total number of adjectives checked from all the dream ACL forms equaled the number of adjectives that had been checked on the subjects' waking ACL profile. By using this procedure, a composite dreaming psychological profile was created.

7. Instruction in dream retention techniques

A prerequisite to the collection of the subjects' dream reports was the recalling of the dream. To enhance the subjects' ability to recall dreams, instructions in dream retention were given. This consisted of a written instruction manual (Appendix 4) and a verbal description of techniques that could be employed.

8. Scheduling of weekly appointments

Weekly appointments were scheduled for each subject. During this time, subjects brought their dream reports and ACL forms for the entire week. The forms were then coded, dated and filed. The remainder of the time was spent with the subject working on the MSKP Review.

A computer program was designed to update the subjects' files regarding the number of adjectives checked on their composite psychological dream profiles. One of the functions of this program was to correct for any duplicate test items checked by subjects on the ACL dream sheet. This insured that the composite dream profile's number of adjectives checked was an accurate rather than a relative quantity.

Two composite dream profiles were never completed nor used in the study because of this procedure. Both of these subjects turned in a large number of dreams but persisted in checking the same adjectives in all their dreams. Because the computer program controlled this occurrence, the number of adjectives checked on the composite dream profile never was equal to the number of adjectives checked on the waking ACL profile for these two subjects. Thus, within the 4 month time period of the study, these profiles were considered invalid.

To design a composite psychological dream profile that was constructed over time, the dream ACLs were collected weekly for the 4 month period. The number of adjectives checked on each form was determined and the ACLs were arranged using rank order. These were then evaluated weekly using the computer to assess if the composite dreaming profile was complete (waking number of adjectives checked equaled dreaming number of adjectives checked). This procedure assured that the dream profiles were collected over time and not the result of one or two nightmares.

When the composite dream psychological profile was complete, the matrix of adjectives checked was once again run through the ACL computer program to generate Raw Scores, T Scores and Z scores for all 15 Need Scales on the ACL.

CHAPTER IV

PROCEDURES

TREATMENT OF THE DATA

The purpose of this section of the Project Demonstrating Excellence is to provide a description of the statistical treatment of the data.

Dreaming ACL forms and waking ACL forms were kept in individual files until the study was complete. Participants were required to bring their dream reports and corresponding dreaming ACL forms for filing during their weekly scheduled appointment. The waking ACL test data were identified by attaching the label "Waking." The ACL forms collected in conjunction with dream reports were coded "D1, D2, D3, etc...." The dream reports were also coded to correlate with the dreaming ACL form submitted. In addition, all ACL forms were identified by the date and the subject's initials.

All statistical tests were performed using the ACL waking profile generated by the subjects and the ACL waking profile generated by their "significant other." Both of the waking profiles were used in conjunction with the subjects' composite ACL dreaming profile. Using the waking ACL profile created by a "significant other" provided an external check of the individual's personality. This was also used in evaluating the relationship between waking and dreaming ACL profiles.

Three levels of analysis of the data was performed. A condescriptive analysis of the data was first completed. This provided a physical description of each variable in three clusters: 15 need scale variables relating to psychological self profiles, 15 need scale variables relating to significant others and 15 need scale variables relating to psychological dream profiles. Reporting data for each variable included mean, varience, range, kurtosis, minimum values, standard deviation, skewness and maximum value. These values are recorded in Appendices 8, 9, and 10.

The next order of reporting indicated the relationships that existed between the 15 need scale variables. An investigation of set relationships among paired variables was performed using the T-Test. Matched pairs for all 15 need scale variables under three conditions was accomplished:

1. Psychological Self Profiles with Significant Others
2. Psychological Self Profiles with Psychological Dream Profiles
3. Significant Others with Psychological Dream Profiles

Reporting data for the match-pair T-Test included standard deviation, t-value, and 2-tail probability. This was accomplished to determine if the mean differences of the three profiles of dream and self, dream and other, and self and other can be explained as chance fluctuations. The probability of the observed means occurring by chance was equal to the proportion of the samples in which the means between the match-pair variables were as strong or stronger than the observed sample.

Bivariate correlation (waking and dreaming ACL) using Pearson-Product Moment was then accomplished. This showed to what extent prior knowledge of a case's value on one variable enabled the prediction of the case's values on the other match-pair variable. The statistical null hypothesis was based on the concept that the variables under examination were totally unrelated to each other but were distributed exactly as they were observed in the two samples under observation (for example ACL waking and ACL dreaming). This was accomplished to determine the strength positively or negatively of the relationship between the 15 need variables.

The third level of reporting was concerned with the non-observable relationships that may exist between ACL variables.

The Pearson-Product Moment matrix previously created was then passed to a factor analysis program. Using this treatment, second order factors were determined. A multi-variate analysis of the need scale variables of the ACL was performed. If the dreaming ACL Profile was tapping the same dimension as the waking ACL Profile, (generated by the individual or "significant other") then the component factors created from the ACL waking and ACL dreaming Need variables would exhibit a similar make-up of 1st, 2nd and 3rd order factors.

If underlying patterns of relationships existed, the original variable set would then be reduced to a smaller group of factors. This was taken as the source variable set accounting for the observed interrelation in the original paired data (waking and dreaming ACL). This yielded information about the structuring of variables in the waking and dreaming ACL Profiles in terms of the number of significant factors and factor loadings. It also constructed indices that described a new variable set for the waking and dreaming ACL Profiles. This was accomplished so it could be used in later analysis.

CHAPTER V

RESULTS

For clarity in the discussion and reporting of the study, need scale variables generated using the composite dream psychological profile will be referred to as "variable dream" followed by the actual need scale variable. For example, variable "dream" achievement would indicate the variable achievement from the psychological dream profile. The dream psychological profile will be referred to as the "dream" profile.

Need scale variables that were the result of the psychological self profile will be referred to as "variable self" followed by the actual need scale variable. The self psychological profile will be referred to as the "self profile".

Need scale variables that were generated by the significant other profile will be referred to as "variable other" followed by the actual need scale variable. The significant other psychological profile will be referred to as the "other profile."

As presented in Chapter II, theoretical and experimental studies support the concept that there may exist a relationship between waking and dreaming states. In the study, the nature of this relationship was examined.

There were three distinct levels of analysis that were performed to examine the data.

1. A condescriptive analysis was performed consisting of a physical description of each of the 15 need scale variables under the three tested conditions (psychological dream, psychological self and psychological other). It can be found in Appendices 6, 7, and 8.

2. An analysis was completed indicating the significant relationships that exist between the 15 need scale variables under the three tested conditions (psychological dream, psychological self and psychological other). The results of this analysis are reported in tabular form in Tables 1 through 6.

3. Lastly, an examination of underlying patterns to determine if the original 15 need scales could be reduced to a smaller group of factors was accomplished. These factors may be considered "source variable sets" accounting in part for observed interrelationships in the original data (Tables 20 through 28).

The results of the study either substantiated or rejected the null-hypotheses that were tested. All three hypotheses dealt with the existence of relationships between the profiles that were generated.

Because the Pearson-Product Moment Correlation was the method employed in testing all three hypotheses, the results of these tests will first be reported. The Pearson-Product Moment Correlation examines to what extent prior knowledge of a case's value on one variable enables the prediction of the case's value on another variable. In other terms, it shows to what extent two variables (or a group of variables) are significantly either positively or negatively correlated.

The reported correlations though significant, do not indicate causation. For example, the occurrence of the variable "self" affiliation is not responsible for the value or occurrence of the variable "dream" affiliation. The importance of this significant correlation is in the knowledge that when one variable's value is known, it can be used to predict the correlating variable's value.

The first null-hypothesis tested follows.

1. There are no significant correlations between the subjects' waking psychological profile and the subjects' dream psychological profile on 15 need scales as generated from the Adjective Check List.

A Pearson-Product Moment Correlation was performed and significant positive and negative correlations at the .05 level were tabulated (Tables 1, 2). In Table 2 correlations less than the .05 level of significance were omitted from the table for clarity. In examining the 15 by 15 matrix that was generated, only two significant correlations emerged.

The "self" variable affiliation compared with the variable "dream" affiliation positively correlated at the .63 level. Affiliation is the need to establish and maintain many personal relationships. The correlation between dream affiliation and self affiliation indicates that the subjects' perception of their need to establish and maintain relationships also emerges in the same direction during the dream state.

The second significant correlation observed was between the variable "self" heterosexuality and the variable "dream" affiliation at the .62 level. Heterosexuality is the need to establish relationships and interactions with members of the opposite sex. This correlation indicates that the subjects' perceived need to establish and maintain relationships during waking reality re-emerges in the subjects' concerns during their dreams.

In examining each of these correlations, it is interesting to note that the variable "dream" affiliation is paired with both of the "self" variables. A possible explanation for these observed correlations involves the nature of dreams themselves. The dream reality is visually oriented with the main action of the dream containing interactions with other individuals. Both correlations are dealing with interactions with others, a characteristic not uncommon within the dream landscape.

Other than these two correlations, the first null hypothesis of the study was proven to be correct. There were no significant correlations between the psychological dream profile and the psychological self profile.

The implications resulting from correlations between dream and self profiles on all 15 need scales were in defining the type and strength of relationship between the two states. If a positive correlation between a majority of need scale variables had existed, an indication that the concerns of the waking reality as viewed by the subject were being reproduced during the dreaming reality would have been evident. This may have shown a continuity between waking and dreaming states and substantiate that dreams function in an adaptive manner. If the correlations that emerged had been significantly negative, the dream state may have been viewed as compensatory, projecting an inverse relationship of psychological needs from what is perceived by the subject during waking reality.

From the observation of no significant correlations between the dream profile and self profile, no conclusions concerning the function of the dream state can be formed from the study. What can be determined from the data is that there exists no relationship between subject perceived needs and dreaming needs (other than the two positive correlations). The results that were observed may have been due to the inability of the test instrument to adequately reflect the needs that were exhibited in the dream state (Section VII).

Table 1

Pearson-Product Moment Correlation

Dream Psychological Profile
paired with
Self Psychological Profile

	Dream Need Scale Variables														
	Ach	Dom	End	Ord	Int	Nur	Aff	Het	Exh	Aut	Agg	Cha	Suc	Aba	Def
Ach	.37														
Dom	.39	.38													
End	.29	.34	.06												
Ord	.35	.29	.05	.03											
Int	.27	.28	.08	.04	.38										
Nur	.07	.20	.19	.08	.17	.20									
Aff	.20	.24	.07	.03	.35	.20	.63								
Het	.31	.18	.10	.11	.38	.30	.62	.49							
Exh	.10	.07	-.20	-.06	.03	-.13	.26	.09	.38						
Aut	.12	-.13	-.26	-.08	.03	-.15	.13	-.17	.08	.21					
Agg	.23	.05	-.15	-.07	.12	.02	.20	-.02	.14	.05	.09				
Cha	.07	-.12	-.04	.01	.31	.16	.40	.08	.03	.12	-.22	.23			
Suc	.01	-.05	.13	.24	.21	.07	.31	.19	.15	.03	-.03	.00	.23		
Aba	-.17	-.20	.14	-.01	.08	.24	.08	.28	-.13	-.24	-.22	-.07	.01	.02	
Def	.06	.20	.29	.12	.07	.14	.02	.34	.09	-.06	.03	-.17	-.19	-.32	.07
	Ach	Dom	End	Ord	Int	Nur	Aff	Het	Exh	Aut	Agg	Cha	Suc	Aba	Def

Table 2

Pearson-Product Moment Correlation

Dream Psychological Profile
paired with
Self Psychological Profile
> .05 level

	Dream Need Scale Variables														
	Ach	Dom	End	Ord	Int	Nur	Aff	Het	Exh	Aut	Agg	Cha	Suc	Aba	Def
Ach	*														
Dom	*	*													
End	*	*	*												
Ord	*	*	*	*											
Int	*	*	*	*	*										
Nur	*	*	*	*	*	*									
Aff	*	*	*	*	*	*	.63								
Het	*	*	*	*	*	*	.62	*							
Exh	*	*	*	*	*	*	*	*	*						
Aut	*	*	*	*	*	*	*	*	*	*					
Agg	*	*	*	*	*	*	*	*	*	*	*				
Cha	*	*	*	*	*	*	*	*	*	*	*	*			
Suc	*	*	*	*	*	*	*	*	*	*	*	*	*		
Aba	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Def	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	Ach	Dom	End	Ord	Int	Nur	Aff	Het	Exh	Aut	Agg	Cha	Suc	Aba	Def

The second hypothesis tested during the study dealt with the relationships between the dreaming psychological profile and the other psychological profile.

2. There are no significant correlations between the psychological profile as generated by significant others and the subject's dreaming psychological profile on 15 need scales created from the Adjective Check List.

The Pearson-Product Moment Correlation was performed a second time and significant positive and negative correlations at the .05 level were tabulated (Table 3, 4). Correlations less than the .05 level of significance were omitted for clarity on Table 4. Only one significant correlation emerged, that of variable "dream" affiliation with the variable "other" succorance.

The observed correlation indicates that subjects who had dreams showing a need to establish and maintain personal relationships were viewed by their significant others as subjects exhibiting a need to solicit sympathy, affection, or emotional support from others.

The objective of the second hypothesis was to determine if an outside observer of the subjects' psychological needs correlated with the subjects' dream profile. If the following two conditions existed: 1. self profile does not correlate with dream profile and 2. other profile correlates with dream profile, then it may have been possible to deduce either a compensatory or adaptive functioning of dreams.

Under these conditions, dreams may have been viewed as tapping into the same dimension in analyzing needs as a significant other. The implications for using dreams in a therapeutic setting to determine psychological needs that were being overlooked may have been substantiated. The results of the second hypothesis were however, contrary to these indications. Dreams can not be viewed as assessing psychological needs in relationship to the observations of significant others or the subjects themselves. The dimensions that are being reported in the dream state concerning psychological needs are not congruent to those of waking reality.

Other than a singular correlation, the second hypothesis of the study was proven to be correct. There were no correlations between dream profile and other profile.

Table 3

Pearson-Product Moment Correlation

Dream Psychological Profile
paired with
Significant Other Psychological Profile

	Dream Need Scale Variables														
	Ach	Dom	End	Ord	Int	Nur	Aff	Het	Exh	Aut	Agg	Cha	Suc	Aba	Def
Ach	-.05														
Dom	-.11	-.01													
End	-.08	.05	-.09												
Ord	-.02	.10	-.11	-.16											
Int	.15	.16	.02	.06	.30										
Nur	.23	.17	.04	.04	.29	.15									
Aff	.19	.15	-.04	.05	.31	.00	.30								
Het	.06	.06	-.05	.02	.25	.02	.21	.17							
Exh	-.14	-.02	-.18	-.06	-.17	-.38	-.15	-.06	.16						
Aut	-.17	-.19	-.22	-.12	-.31	-.33	-.29	-.14	-.03	.07					
Agg	-.27	-.20	-.08	.02	-.23	-.11	-.16	.00	-.02	-.12	-.02				
Cha	-.01	-.06	.03	.09	.00	-.15	-.01	-.10	.04	.09	.01	-.20			
Suc	-.05	-.13	-.11	-.12	.27	.36	.53	.28	.04	-.10	-.32	.25	.30		
Aba	.02	-.13	.04	-.06	.34	.44	.41	.25	-.06	-.28	-.44	.15	.08	.11	
Def	.17	.07	.06	-.06	.36	.30	.26	.11	-.05	-.10	-.19	.12	-.05	-.07	.12
	Ach	Dom	End	Ord	Int	Nur	Aff	Het	Exh	Aut	Agg	Cha	Suc	Aba	Def

Table 4

Pearson-Product Moment Correlation

Dream Psychological Profile
paired with
Significant Other Psychological Profile
> .05 level

	Dream Need Scale Variables														
	Ach	Dom	End	Ord	Int	Nur	Aff	Het	Exh	Aut	Agg	Cha	Suc	Aba	Def
Ach	*														
Dom	*	*													
End	*	*	*												
Ord	*	*	*	*											
Int	*	*	*	*	*										
Nur	*	*	*	*	*	*									
Aff	*	*	*	*	*	*	*								
Het	*	*	*	*	*	*	*	*							
Exh	*	*	*	*	*	*	*	*	*						
Aut	*	*	*	*	*	*	*	*	*	*					
Agg	*	*	*	*	*	*	*	*	*	*	*				
Cha	*	*	*	*	*	*	*	*	*	*	*	*			
Suc	*	*	*	*	*	*	.53	*	*	*	*	*	*		
Aba	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Def	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	Ach	Dom	End	Ord	Int	Nur	Aff	Het	Exh	Aut	Agg	Cha	Suc	Aba	Def

Lastly, the third null hypothesis was designed to examine the relationships between the self and other psychological profile.

3. There are no significant correlations between the subject's waking psychological profile and the psychological profile as generated by the significant other on 15 need scales as created from the Adjective Check List.

A Pearson-Product Moment Correlation was run a third time and significant positive and negative correlations at the .05 level were tabulated (Table 5, 6). Correlations less than the .05 level of significance were omitted for clarity on Table 6.

In the 15 by 15 matrix thus created, 15 positive significant correlations were observed and one negative significant correlation emerged. Seven of the 16 observed significant correlations were found to be match-paired variables. For example, variable "self" dominance was found to be significantly correlated with the variable "other" dominance. Variable "self" endurance was found to be significantly correlated with the variable "other" endurance. Variable "self" order was found to be significantly correlated with the variable "other" order.

The interpretation of these match-paired correlations deals with perception of needs. The subjects' perception of their psychological needs (how they view themselves) is congruent with the perception of their significant other (how others view them). These match-paired agreements of perception accounted for 47% of all correlations between self and other psychological profiles.

In the correlation matrix, five "other" variables correlated positively with the variable "self" endurance. These "other" variables were endurance, order, intraception, nurturance and affiliation. Endurance is the ability to continue regardless of difficulty to meet any objective that is undertaken. Subjects who perceived themselves exhibiting the need endurance were viewed by their significant others as also exhibiting order, intraception, nurturance and affiliation.

One negatively significant correlation occurred between variable "self" exhibition and the variable "other" deference. Subjects who had a need to behave in a manner to elicit the immediate attention of others were viewed by their significant others as not having the need to establish subordinate positions and roles in relationship to others.

Four variables "self" correlated with variable "other" affiliation. Individuals with these four needs Intraception, Order, Endurance and Achievement were perceived by their significant others as needing to establish and maintain many personal relationships. The remaining significant correlation consisted of a second correlation found with the "self" intraception variable and the "other" nurturance variable.

The third null hypothesis was not substantiated from the number of correlations observed. This indicates that overall, the subjects' perception of themselves is being verified by the significant others' perception of the subjects' needs. A relatively large portion of the need scale variables are being reproduced during the waking reality as compared to the dream condition.

In viewing these three sets of correlations, (dream/self, dream/other, self/other) some general conclusions can be drawn. There seems to exist a waking reality agreement of the perceived and observed psychological needs of the subjects, particularly among match-paired variables. There is no evidence that an agreement of needs exists between the dream state and waking reality (subjects' perception of needs and the dream or between the dream and the significant others' perception of the subjects' needs). The dreaming state seems to be tapping into another area of experience and not reproducing the psychological need concerns of waking reality. Recommendations for future studies will be presented in Chapter VII.

Table 5

Pearson-Product Moment Correlation

Self Psychological Profile
paired with
Significant Other Psychological Profile

	Self Need Scale Variables														
	Ach	Dom	End	Ord	Int	Nur	Aff	Het	Exh	Aut	Agg	Cha	Suc	Aba	Def
Ach	.40														
Dom	.31	.50													
End	.25	.21	.53												
Ord	.31	.20	.54	.52											
Int	.43	.23	.54	.44	.56										
Nur	.44	.29	.54	.45	.55	.43									
Aff	.54	.42	.54	.50	.50	.25	.42								
Het	.45	.45	.41	.36	.33	.22	.41	.41							
Exh	.31	.46	.10	.12	.00	-.01	.27	.37	.60						
Aut	.00	.24	-.20	-.15	-.36	-.40	-.10	.18	.48	.41					
Agg	-.04	.22	-.20	-.20	-.39	-.22	-.04	.20	.42	.21	.36				
Cha	.17	.26	-.15	-.16	-.15	-.20	.08	.27	.44	.41	.35	.54			
Suc	.23	-.01	.22	.18	.35	.34	.39	.12	-.01	-.02	-.10	.18	.12		
Aba	-.12	-.39	.10	.06	.39	.40	.12	-.21	-.46	-.41	-.49	-.12	.23	.54	
Def	-.03	-.27	.20	.19	.35	.31	.08	-.20	-.50	-.38	-.39	-.25	.10	.36	.44
	Ach	Dom	End	Ord	Int	Nur	Aff	Het	Exh	Aut	Agg	Cha	Suc	Aba	Def

Table 6

Pearson-Product Moment Correlation

Self Psychological Profile
paired with
Significant Other Psychological Profile
> .05 level

	Self Need Scale Variables														
	Ach	Dom	End	Ord	Int	Nur	Aff	Het	Exh	Aut	Agg	Cha	Suc	Aba	Def
Ach	*														
Dom	*	.50													
End	*	*	.53												
Ord	*	*	.54	.52											
Int	*	*	.54	*	.56										
Nur	*	*	.54	*	.55	*									
Aff	.54	*	.54	.50	.50	*	*								
Het	*	*	*	*	*	*	*	*							
Exh	*	*	*	*	*	*	*	*	.60						
Aut	*	*	*	*	*	*	*	*	*	*					
Agg	*	*	*	*	*	*	*	*	*	*	*				
Cha	*	*	*	*	*	*	*	*	*	*	*	.54			
Suc	*	*	*	*	*	*	*	*	*	*	*	*	*		
Aba	*	*	*	*	*	*	*	*	*	*	*	*	*	.54	
Def	*	*	*	*	*	*	*	*	-.50	*	*	*	*	*	*
	Ach	Dom	End	Ord	Int	Nur	Aff	Het	Exh	Aut	Agg	Cha	Suc	Aba	Def

CHAPTER VI

DISCUSSION

Although it is beyond the specific objectives of the study, inter-scale correlations were examined. The objective of this research was not to explore the profiles of a specific vocational group (medical students) but rather to study the relationships between waking and dreaming states. The following information is not specifically related to the hypotheses of the study. It does however, clarify the nature of the elements that contributed to the formation of the need scale variable relationships.

The Pearson-Product Moment Correlation was performed to determine the intercorrelations within each psychological profile (dream, self, and other). The 15 variables of the dream profile were compared with themselves (Tables 7, 8). Match-paired variables "dream" naturally correlated at the 1.00 level being perfect correlations with themselves. Through this examination, 21 significant correlations emerged with five of the total being negative. Fourteen correlations were expected in comparison with normative data. Normative data concerning intercorrelations (Gough & Heilbrun, 1980b) are reported in Tables 29 AND 30. When masking the dream profile using this data, expected correlations drop out of the matrix leaving correlations that were not expected. After masking with normative data, only six significant correlations are observed (Table 9). These intercorrelations follow.

1. Dominance and Endurance
The creation and enforcement of dominant roles in relationships and the need to continue regardless of difficulty.

2. Nurturance and Heterosexuality
The ability to engage in behaviors that provide material or emotional support and the need to establish relationships with members of the opposite sex.

3. Achievement and Change
The desire to be outstanding and the need to avoid routine.

4. Exhibition and Change
Behaving in a way to elicit the attention of others and the need to avoid routine.

5. Endurance and Abasement (Negative)
Continuing regardless of difficulty and the need to not express inferiority.

6. Nurturance and Deference
Engaging in behaviors that provide material or emotional support and the need to establish subordinate roles in relationships.

The intercorrelations of the subjects' dream profiles are qualities not observed in the normative data. The need to create dominant roles may be mirrored in the authoritarian role of the physician. The ability to perservers is essential for completion of an intensive and exhaustive curriculum, with years of internships and residencies. The desire to excell is perhaps a component of perserverance in that it propels and motivates the students toward goal completion. Coupled with the desire for excellence is a freedom from mundane routine which may

Table 7

Pearson-Product Moment Correlation

Dream Psychological Profile

	Ach	Dom	End	Ord	Int	Nur	Aff	Het	Exh	Aut	Agg	Cha	Suc	Aba	Def
Ach															
Dom	.80														
End	.62	.55													
Ord	.45	.29	.80												
Int	.48	.29	.38	.38											
Nur	.12	-.05	.29	.25	.65										
Aff	.40	.17	.21	.23	.74	.70									
Het	.31	.26	.22	.11	.46	.55	.61								
Exh	.34	.53	-.02	-.13	.08	-.15	.29	.34							
Aut	.19	.37	-.26	-.27	-.07	-.45	.02	.00	.56						
Agg	.21	.44	-.12	-.22	-.34	-.72	-.46	-.12	.39	.53					
Cha	.50	.44	-.13	-.30	.35	.14	.48	.30	.50	.31	.17				
Suc	-.16	-.30	-.49	-.41	-.10	.03	.30	.18	.13	.11	.01	.31			
Aba	-.39	-.66	-.52	-.36	.02	.22	.21	.09	-.32	-.34	-.36	.06	.57		
Def	-.16	-.38	.21	.36	.13	.55	.19	.01	-.61	-.73	-.72	-.72	-.40	.41	
	Ach	Dom	End	Ord	Int	Nur	Aff	Het	Exh	Aut	Agg	Cha	Suc	Aba	Def

Table 8

Pearson-Product Moment Correlation

Dream Psychological Profile
Intercorrelations > .05 level

	Ach	Dom	End	Ord	Int	Nur	Aff	Het	Exh	Aut	Agg	Cha	Suc	Aba	Def
Ach															
Dom	.80														
End	.62	.55													
Ord	*	*	.80												
Int	*	*	*	*											
Nur	*	*	*	*	.65										
Aff	*	*	*	*	.74	.70									
Het	*	*	*	*	*	.55	.61								
Exh	*	.53	*	*	*	*	*	*							
Aut	*	*	*	*	*	*	*	*	.56						
Agg	*	*	*	*	*	*	*	*	*	.53					
Cha	.50	*	*	*	*	*	*	*	.50	*	*				
Suc	*	*	*	*	*	*	*	*	*	*	*	*			
Aba	*	-.66	-.52	*	*	*	*	*	*	*	*	*	.57		
Def	*	*	*	*	*	.55	*	*	-.61	-.73	-.72	*	*	*	
	Ach	Dom	End	Ord	Int	Nur	Aff	Het	Exh	Aut	Agg	Cha	Suc	Aba	Def

Table 9

Pearson-Product Moment Correlation

Dream Psychological Profile
Masked with Normative Data
Intercorrelations > .05 level

	Ach	Dom	End	Ord	Int	Nur	Aff	Het	Exh	Aut	Agg	Cha	Suc	Aba	Def
Ach															
Dom	*														
End	*	.55													
Ord	*	*	*												
Int	*	*	*	*											
Nur	*	*	*	*	*										
Aff	*	*	*	*	*	*									
Het	*	*	*	*	*	.55	*								
Exh	*	*	*	*	*	*	*	*							
Aut	*	*	*	*	*	*	*	*	*						
Agg	*	*	*	*	*	*	*	*	*	*					
Cha	.50	*	*	*	*	*	*	*	.50	*	*				
Suc	*	*	*	*	*	*	*	*	*	*	*	*			
Aba	*	*	-.52	*	*	*	*	*	*	*	*	*	*		
Def	*	*	*	*	*	.55	*	*	*	*	*	*	*	*	
	Ach	Dom	End	Ord	Int	Nur	Aff	Het	Exh	Aut	Agg	Cha	Suc	Aba	Def

allow for more vital experiences and decision making processes. The trait of not assuming subordinate positions within relationships recurrs accenting the physician's role as autonomous. These are the need characteristics that were intercorrelated in medical students' dreams.

The 15 variables of the self profile were match-paired with themselves (Tables 10, 11). Match-paired "self" variables naturally correlated at the 1.00 level being perfect correlations with themselves. Through this examination, 43 significant correlations emerged with eight of the total being negative (Table 11).

Through the application of normative data (Table 12), 25 non-expected significant correlations were found with two of the correlations being negative. There were five "self" variables that correlated with the majority of variables.

1. Dominance (the need to create and enforce leadership roles) with: Endurance, Order, Affiliation, Heterosexuality, Autonomy and Aggression.

2. Achievement (the desire to be outstanding) with: Intraception, Affiliation, Heterosexuality and Exhibition.

3. Affiliation (the need to establish personal relationships) with: Achievement, Dominance, Endurance and Order.

4. Heterosexuality (the need to establish relationships with members of the opposite sex) with: Exhibition Autonomy, Aggression and Change.

5. Change (the need to avoid routine) with: Heterosexuality, Exhibition, Autonomy and Aggression.

Table 10

Pearson-Product Moment Correlation

Self Psychological Profile

	Ach	Dom	End	Ord	Int	Nur	Aff	Het	Exh	Aut	Agg	Cha	Suc	Aba	Def
Ach															
Dom	.85														
End	.80	.68													
Ord	.77	.63	.89												
Int	.56	.32	.74	.70											
Nur	.27	.17	.53	.40	.78										
Aff	.65	.54	.62	.62	.76	.76									
Het	.65	.76	.44	.44	.33	.31	.71								
Exh	.63	.74	.27	.23	.07	-.05	.41	.71							
Aut	.45	.53	.02	.10	-.18	-.45	.08	.46	.75						
Agg	.48	.63	.07	.13	-.27	-.47	.03	.57	.73	.77					
Cha	.35	.34	-.10	-.14	.00	-.06	.35	.59	.65	.67	.51				
Suc	.01	-.10	-.01	.03	.27	.32	.25	.04	-.01	-.23	-.21	-.09			
Aba	-.46	-.61	-.22	-.17	.07	.33	.01	-.28	-.63	-.72	-.62	-.39	.43		
Def	-.29	-.39	.14	.14	.36	.61	.17	-.26	-.65	-.85	-.77	-.65	.30	.75	
	Ach	Dom	End	Ord	Int	Nur	Aff	Het	Exh	Aut	Agg	Cha	Suc	Aba	Def

Table 11

Pearson-Product Moment Correlation

Self Psychological Profile
Intercorrelations >.05 level

	Ach	Dom	End	Ord	Int	Nur	Aff	Het	Exh	Aut	Agg	Cha	Suc	Aba	Def
Ach															
Dom	.85														
End	.80	.68													
Ord	.77	.63	.89												
Int	.56	*	.74	.70											
Nur	*	*	.53	*	.78										
Aff	.65	.54	.62	.62	.76	.76									
Het	.65	.76	*	*	*	*	.71								
Exh	.63	.74	*	*	*	*	*	.71							
Aut	*	.53	*	*	*	*	*	.75	*						
Agg	*	.63	*	*	*	*	*	.57	.73	.77					
Cha	*	*	*	*	*	*	*	.59	.65	.67	.51				
Suc	*	*	*	*	*	*	*	*	*	*	*	*			
Aba	*	-.61	*	*	*	*	*	*	-.63	-.72	-.62	*	*		
Def	*	*	*	*	*	.61	*	*	-.65	-.85	-.77	-.65	*	.75	
	Ach	Dom	End	Ord	Int	Nur	Aff	Het	Exh	Aut	Agg	Cha	Suc	Aba	Def

Table 12

Pearson-Product Moment Correlation

Self Psychological Profile
Masked with Normative Data
Intercorrelations > .05 level

	Ach	Dom	End	Ord	Int	Nur	Aff	Het	Exh	Aut	Agg	Cha	Suc	Aba	Def
Ach															
Dom	*														
End	*	.68													
Ord	*	.63	*												
Int	.56	*	.74	.70											
Nur	*	*	.53	*	*										
Aff	.65	.54	.62	.62	*	*									
Het	.65	.76	*	*	*	*	*								
Exh	.63	*	*	*	*	*	*	.71							
Aut	*	.53	*	*	*	*	*	.75	*						
Agg	*	.63	*	*	*	*	*	.57	*	*					
Cha	*	*	*	*	*	*	*	.59	.65	.67	.51				
Suc	*	*	*	*	*	*	*	*	*	*	*	*			
Aba	*	*	*	*	*	*	*	*	*	*	-.62	*	*		
Def	*	*	*	*	*	.61	*	*	*	*	*	-.65	*	*	
	Ach	Dom	End	Ord	Int	Nur	Aff	Het	Exh	Aut	Agg	Cha	Suc	Aba	Def

The 15 variables of the profile other were compared with the same 15 variables of the profile other (Tables 13, 14). Match-paired variables "other" naturally correlated at the 1.00 level being perfect correlations with themselves. Through this examination, 36 significant correlations emerged with 14 of the total being negative (Table 15).

Through the application of normative data, 13 significant correlations that were not expected were observed of the correlations being negative. The variable "other" change correlated with four of the "other" inter-scale variables.

1. Change (The need to avoid routine and the exploration of the new) with: Endurance (negative), Exhibition, Autonomy and Aggression.

To determine if the mean differences of the three profiles of dream and self, dream and other, and self and other, using match-paired variables can be explained as chance fluctuations, the t-test was employed. Differences between the match-paired variables less than the .05 level indicate that the sample means are fluctuating about a common mean. Essentially these match-paired variables can be considered to be a stable match-pair. Consequently, differences between these means would be insignificant.

Differences between the match-paired variables greater than the .05 level indicate information useful in determining the differences between these match-paired variables.

Table 13

Pearson-Product Moment Correlation

Significant Other Psychological Profile

	Ach	Dom	End	Ord	Int	Nur	Aff	Het	Exh	Aut	Agg	Cha	Suc	Aba	Def
Ach															
Dom	.71														
End	.74	.24													
Ord	.67	.19	.93												
Int	.46	.12	.58	.58											
Nur	.25	.01	.43	.39	.86										
Aff	.45	.32	.38	.39	.87	.81									
Het	.41	.44	.23	.15	.64	.66	.86								
Exh	.28	.77	-.18	-.23	-.10	-.12	.16	.36							
Aut	.20	.65	-.34	-.35	-.35	-.48	-.12	.04	.73						
Agg	.22	.61	-.28	-.32	-.48	-.56	-.33	-.05	.69	.76					
Cha	.06	.49	-.51	-.56	-.06	-.04	.23	.44	.63	.62	.52				
Suc	.00	-.32	.16	.21	.37	.31	.22	.18	-.19	-.41	-.10	-.19			
Aba	-.28	-.69	.25	.27	.32	.37	.04	-.10	-.67	-.81	-.61	-.60	-.60		
Def	-.20	-.63	.38	.42	.39	.49	.18	-.04	-.73	-.88	-.82	-.68	.33	.83	
	Ach	Dom	End	Ord	Int	Nur	Aff	Het	Exh	Aut	Agg	Cha	Suc	Aba	Def

Table 14

Pearson-Product Moment Correlation

Significant Other Psychological Profile Intercorrelations >.05 level

	Ach	Dom	End	Ord	Int	Nur	Aff	Het	Exh	Aut	Agg	Cha	Suc	Aba	Def
Ach															
Dom	.71														
End	.74	*													
Ord	.67	*	.93												
Int	*	*	.58	.58											
Nur	*	*	*	*	.86										
Aff	*	*	*	*	.87	.81									
Het	*	*	*	*	.64	.66	.86								
Exh	*	.77	*	*	*	*	*	*							
Aut	*	.65	*	*	*	*	*	*	.73						
Agg	*	.61	*	*	*	-.56	*	*	.69	.76					
Cha	*	*	-.51	-.56	*	*	*	*	.63	.62	.52				
Suc	*	*	*	*	*	*	*	*	*	*	*	*			
Aba	*	-.69	*	*	*	*	*	*	-.67	-.81	-.61	-.60	-.60		
Def	*	-.63	*	*	*	*	*	*	-.73	-.88	-.82	-.68	*	.83	

Ach Dom End Ord Int Nur Aff Het Exh Aut Agg Cha Suc Aba Def

Table 15

Pearson-Product Moment Correlation

Significant Other Psychological Profile
Masked with Normative Data
Intercorrelations > .05 level

	Ach	Dom	End	Ord	Int	Nur	Aff	Het	Exh	Aut	Agg	Cha	Suc	Aba	Def
Ach															
Dom	*														
End	*	*													
Ord	*	*	*												
Int	*	*	.58	.58											
Nur	*	*	*	*	*										
Aff	*	*	*	*	*	*									
Het	*	*	*	*	.64	.66	*								
Exh	*	*	*	*	*	*	*	*							
Aut	*	.65	*	*	*	*	*	*	*						
Agg	*	.61	*	*	*	*	*	*	*	*					
Cha	*	*	-.51	*	*	*	*	*	.63	.62	.52				
Suc	*	*	*	*	*	*	*	*	*	*	*	*			
Aba	*	*	*	*	*	*	*	*	*	*	-.61	-.60	*		
Def	*	*	*	*	*	*	*	*	*	*	*	-.68	*	*	
	Ach	Dom	End	Ord	Int	Nur	Aff	Het	Exh	Aut	Agg	Cha	Suc	Aba	Def

While examining the match-paired variables between the dream profile and the self profile, four match-paired variables emerge as stable (Table 16).

1. Dominance
2. Exhibition
3. Change
4. Abasement

The remaining match-paired variables yielded information that was descriptive. In examining the mean difference of these variables, seven of the match-paired variables had lower means on the dream profile than the self profile. These seven variables "dream" follow.

1. Achievement
2. Endurance
3. Order
4. Intraception
5. Nurturance
6. Affiliation
7. Heterosexuality

This information is indicating that the subjects' dreams were less concerned with being outstanding or continuing to strive regardless of difficulty than when awake. The dream state seems to be less ordered than waking reality and does not concern itself with attempting to understand others or establishing significant relationships to the degree that is exhibited while the subject is awake.

The remaining four match-paired variables had a higher mean on the dream profile than the self profile.

1. Autonomy
2. Aggression
3. Succorance
4. Deference

Table 16

t-Test

Dream Psychological Profile
match-paired with
Self Psychological Profile

Variable		Mean	S.D.	T-Ratio	2-Tail Probability
Achievement	Self:	10.32	6.04	-2.38	0.02
	Dream:	07.71	4.67		
Dominance	Self:	06.23	5.20	-1.60	0.12
	Dream:	04.68	4.45		
Endurance	Self:	07.48	5.99	-4.49	0.00
	Dream:	01.58	4.60		
Order	Self:	06.29	5.24	-4.23	0.00
	Dream:	01.26	4.18		
Intraception	Self:	12.81	5.46	-8.00	0.00
	Dream:	04.90	4.26		
Nurturance	Self:	13.29	6.14	-8.93	0.00
	Dream:	01.03	5.93		
Affiliation	Self:	19.35	8.32	-5.81	0.00
	Dream:	12.48	6.59		
Heterosexuality	Self:	08.77	4.61	-3.03	0.01
	Dream:	06.45	3.66		
Exhibition	Self:	03.00	5.45	1.27	0.22
	Dream:	04.23	3.96		
Autonomy	Self:	03.13	4.59	4.65	0.00
	Dream:	07.87	4.41		
Aggression	Self:	-2.77	4.86	5.31	0.00
	Dream:	03.23	4.43		
Change	Self:	05.97	3.95	-1.55	0.13
	Dream:	04.61	3.90		
Succorance	Self:	00.65	2.23	3.44	0.00
	Dream:	02.58	2.75		
Abasement	Self:	-0.16	3.67	0.41	0.68
	Dream:	00.26	4.41		
Deference	Self:	00.58	5.60	-3.39	0.00
	Dream:	-3.74	4.76		

The four match-paired variables would be expected to be lower during the dream state. Individuals are very often the center of attention during the dream and find themselves in conflicts that are dealt with in an aggressive manner. These stressful situations leave individuals feeling inadequate during the dream.

The second set of match-paired variables observed was between the dream profile and the profile other (Table 17). Six match-paired variables emerge as stable.

1. Achievement
2. Dominance
3. Heterosexuality
4. Exhibition
5. Change
6. Abasement

The remaining nine match-paired variables yielded information that was descriptive. Five of the match-paired variables had lower means on the dream profile than the profile other.

1. Endurance
2. Order
3. Intraception
4. Nurturance
5. Affiliation

Four match-paired variables had a higher mean on the dream profile than the profile other.

1. Autonomy
2. Aggression
3. Succorance
4. Deference

The last match-paired variables examined were between the self profile and the profile other (Table 18). Of the 15 match-paired variables, 13 were stable.

Table 17

t-Test

Dream Psychological Profile
match-paired with
Significant Other Psychological Profile

Variable		Mean	S.D.	T-Ratio	2-Tail Probability
Achievement	Other:	09.90	5.47	-1.66	0.11
	Dream:	07.71	4.67		
Dominance	Other:	05.90	5.75	-0.94	0.36
	Dream:	04.68	4.45		
Endurance	Other:	06.84	6.49	-3.54	0.00
	Dream:	01.58	4.60		
Order	Other:	06.06	6.54	-3.22	0.00
	Dream:	01.26	4.18		
Intraception	Other:	10.58	6.02	-5.06	0.00
	Dream:	04.90	4.26		
Nurturance	Other:	12.03	7.13	-7.16	0.00
	Dream:	01.03	5.93		
Affiliation	Other:	16.10	7.61	-2.41	0.02
	Dream:	12.48	6.59		
Hetersexuality	Other:	08.19	4.16	-1.92	0.06
	Dream:	06.45	3.66		
Exhibition	Other:	03.55	5.83	0.58	0.57
	Dream:	04.23	3.96		
Autonomy	Other:	02.68	4.65	4.66	0.00
	Dream:	07.87	4.41		
Aggression	Other:	-1.48	5.52	3.68	0.00
	Dream:	03.23	4.43		
Change	Other:	04.71	4.95	-0.08	0.94
	Dream:	04.61	3.90		
Succorance	Other:	00.03	2.99	4.16	0.00
	Dream:	02.58	2.75		
Abasement	Other:	-0.84	3.76	1.12	0.27
	Dream:	00.26	4.41		
Deference	Other:	00.29	4.93	-3.48	0.00
	Dream:	-3.74	4.76		

Table 18

t-Test

Self Psychological Profile match-paired with Significant Other Psychological Profile

Variable		Mean	S.D.	T-Ratio	2-Tail Probability
Achievement	Self:	10.32	6.03	0.37	0.71
	Other:	09.90	5.47		
Dominance	Self:	06.23	5.20	0.33	0.75
	Other:	05.90	5.75		
Endurance	Self:	07.48	5.99	0.59	0.56
	Other:	06.84	6.49		
Order	Self:	06.29	5.24	0.21	0.83
	Other:	06.06	6.54		
Intraception	Self:	10.58	6.02	-2.29	0.03
	Other:	12.81	5.46		
Nurturance	Self:	12.03	7.13	-0.98	0.34
	Other:	13.29	6.14		
Affiliation	Self:	16.10	7.61	-2.11	0.04
	Other:	19.35	8.32		
Hetersexuality	Self:	08.19	4.16	-0.71	0.48
	Other:	08.77	4.61		
Exhibition	Self:	03.55	5.83	0.60	0.55
	Other:	03.00	5.45		
Autonomy	Self:	02.68	4.65	-0.50	0.62
	Other:	03.13	4.58		
Aggression	Self:	-1.48	5.52	1.22	0.23
	Other:	-2.77	4.86		
Change	Self:	04.71	4.95	-1.60	0.12
	Other:	05.97	3.95		
Succorance	Self:	00.03	2.99	-0.97	0.34
	Other:	00.65	2.23		
Abasement	Self:	-0.84	3.76	-1.06	0.30
	Other:	-0.16	3.67		
Deference	Self:	00.29	4.93	-0.29	0.77
	Other:	00.58	5.61		

1. Achievement
2. Dominance
3. Endurance
4. Order
5. Nurturance
6. Heterosexuality
7. Exhibition
8. Autonomy
9. Aggression
10. Change
11. Succorance
12. Abasement
13. Deference

There were only two match-paired variables that were descriptive.

1. Intraception
2. Affiliation

Intraception and Affiliation both had a higher mean on the profile other than the self profile. This is indicating that significant others observed the subjects to be higher in the desire to understand their own behavior and having a need to maintain personal relationships than the subjects perceived of themselves.

In viewing dream/self and dream/other profiles, some similarities become apparent (Table 19). Several match-paired variables showed the same direction of high and low mean scores. The following match-paired variables were found to have lower mean scores in the dream state as opposed to the waking state (self and other psychological profiles).

1. Endurance
2. Order
3. Intraception
4. Nurturance
5. Affiliation

Table 19

t-Test Comparison

Dream, Self, and Significant Other Psychological Profiles

Match-Paired Variables	Dream/Self Mean	Dream/Other Mean	Self/Other Mean
Achievement	Low High	Stable	Stable
Dominance	Stable	Stable	Stable
Endurance	Low High	Low High	Stable
Order	Low High	Low High	Stable
Intraception	Low High	Low High	Low High
Nurturance	Low High	Low High	Stable
Affiliation	Low High	Low High	Low High
Heterosexuality	Low High	Stable	Stable
Exhibition	Stable	Stable	Stable
Autonomy	High Low	High Low	Stable
Aggression	High Low	High Low	Stable
Change	Stable	Stable	Stable
Succorance	High Low	High Low	Stable
Abasement	Stable	Stable	Stable
Deference	High Low	High Low	Stable

These five match-paired variables are indicating that during the waking state, the subjects are more concerned with needs of continued activity regardless of opposition, organization and understanding self and others than during sleep. Needs of establishing relationships and providing material or emotional benefits to others are also being expressed to a larger degree while the subject is awake as compared to while dreaming.

There were four match-paired variables that had higher mean scores during the dream state than the waking state (self and other psychological profiles).

1. Autonomy
2. Aggression
3. Succorance
4. Deference

As previously indicated, these four variables many times are seen in the dream state and are used for resolution of conflict. Many times individuals are the center of attention and are independent of the expectations of others, both characteristics of the need autonomy.

There also existed four match-paired variables that were stable over the dream state and the waking state (self and other psychological profiles).

1. Dominance
2. Exhibition
3. Change
4. Abasement

These four need scale variables are being reported similarly in both the dream and waking states. The characteristics of creating leadership roles, eliciting attention of others, avoidance of routine and acting in a self-confident and assertive manner are concerns of the medical population used in this study.

Though these statistics are not predictive of relationships between waking and dreaming states, they do provide a display of population similarities and differences.

Lastly, an examination of the underlying patterns of the original 15 need scale variables in the dream, self, and other psychological profiles was performed using multi-variate analysis. This was accomplished to determine if the original variables of each psychological profile could be reduced to a smaller group of factors. If so, this would yield information concerning source variable sets that could account in part for some of the dynamics of the original data.

Principal Component analysis was performed on the dream, self, and other psychological profiles (Tables 20, 21, and 22). Three factors were derived from the dream profile with an eigen value greater than 1.00 and accounting for 75.2% of the cumulative varience (Table 20). The same procedure resulted in three factors for the self profile with an eigen value greater than 1.00 and accounting for 83 % of the cumulative varience (Table 21). The third analysis of the data resulted in four factors with an eigen value greater than 1.00 for the profile other and accounted for 90.7% of the cummulative varience

Table 20

Principal Components

Dream Psychological Profile

Factor	Eigen Value	Varience Percent	Cumulative Percent
1	4.25	28.3	28.3
2	4.15	27.6	56.0
3	2.89	19.3	75.2
4	0.78	05.2	80.5
5	0.70	04.7	85.1
6	0.59	03.9	89.1
7	0.45	03.0	92.1
8	0.32	02.1	94.2
9	0.26	01.8	96.0
10	0.20	01.3	97.3
11	0.13	00.9	98.2
12	0.09	00.6	98.7
13	0.08	00.5	99.3
14	0.07	00.5	99.7
15	0.04	00.3	100.0

Table 21

Principal Components

Self Psychological Profile

Factor	Eigen Value	Varience Percent	Cumulative Percent
1	6.35	42.4	42.4
2	5.60	30.7	73.0
3	1.50	10.0	83.0
4	0.80	05.4	88.3
5	0.57	03.8	92.1
6	0.38	02.5	94.6
7	0.20	01.3	96.0
8	0.15	01.0	97.0
9	0.12	00.8	97.8
10	0.10	00.6	98.4
11	0.07	00.5	98.9
12	0.07	00.4	99.3
13	0.04	00.3	99.6
14	0.03	00.2	99.8
15	0.03	00.2	100.0

Table 22

Principal Components

Significant Other Psychological Profile

Factor	Eigen Value	Varience Percent	Cummulative Percent
1	6.12	40.8	40.8
2	4.44	29.6	70.4
3	2.01	13.4	83.8
4	1.04	06.9	90.7
5	0.35	02.3	93.0
6	0.27	01.8	94.8
7	0.19	01.3	96.1
8	0.15	01.0	97.1
9	0.12	00.8	97.9
10	0.09	00.6	98.5
11	0.07	00.5	99.0
12	0.06	00.4	99.4
13	0.04	00.3	99.7
14	0.03	00.2	99.9
15	0.02	00.1	100.0

(Table 22).

A Varimax Rotated Component Matrix was next constructed using the factors derived from the principal component analysis (Tables 23, 24, and 25). This analysis showed the strength and clustering of the original 15 variables for the three psychological profiles dream, self, and other. Table 26 examines factor One for all three profiles and reports them in tabular form. Tables 27 and 28 repeat the process but compare factor 2 and factor 3 respectively on each psychological profile.

In observation of Tables 23 and 26, factor One contains personality characteristics of the medical population used in this study. This factor clustering is consistent during the dream state and waking state (self and other psychological profiles). The clusterings that occur in the dream, self and other psychological profiles can be compressed and explained by eight variables. Achievement, Dominance, Exhibition, Autonomy, Aggression, Change, Abasement (negative) and Deference (negative) are all observed in the three psychological profiles as being responsible for factor One. Factor one is concerned with needs of excellence, of being extroverted, seeking challenges and goal orientation. Type A personalities would be descriptive of this first factor.

Factor two (Table 27) appears to have a different orientation than factor One across all three psychological profiles. Of the 15 need scale variables, four are present in the three psychological profiles and consist of

Table 23

Varimax Rotated Component Matrix

Dream Psychological Profile

Variable	Factor 1	Factor 2	Factor 3	Communality
Achievement	.40	.51	.59	.76
Dominance	.62	*	.63	.87
Endurance	*	*	.89	.88
Order	*	*	.79	.76
Intraception	*	.79	*	.70
Nurturance	-.52	.75	*	.84
Affiliation	*	.94	*	.89
Heterosexuality	*	.74	*	.55
Exhibition	.76	*	*	.67
Autonomy	.81	*	*	.66
Aggression	.78	*	*	.76
Change	.56	.59	*	.71
Succorance	*	*	-.74	.63
Abasement	-.43	*	-.75	.78
Deference	-.89	*	*	.82

Table 24

Varimax Rotated Component Matrix

Self Psychological Profile

Variable	Factor 1	Factor 2	Factor 3	Communality
Achievement	.49	.81	*	.89
Dominance	.61	.70	*	.87
Endurance	*	.97	*	.95
Order	*	.94	*	.88
Intraception	*	.78	.44	.82
Nurturance	*	.57	.69	.86
Affiliation	*	.69	.61	.92
Heterosexuality	.69	.48	*	.80
Exhibition	.88	*	*	.85
Autonomy	.87	*	*	.85
Aggression	.82	*	*	.81
Change	.86	*	*	.82
Succorance	*	*	.68	.47
Abasement	-.63	*	.58	.77
Deference	-.82	*	.43	.89

Table 25

Varimax Rotated Component Matrix

Significant Other Psychological Profile

Variable	Factor 1	Factor 2	Factor 3	Factor 4	Communality
Achievement	.41	*	.81	*	.91
Dominance	.83	*	*	*	.93
Endurance	*	*	.93	*	.96
Order	*	*	.92	*	.95
Intraception	*	.83	*	*	.90
Nurturance	*	.87	*	*	.89
Affiliation	*	.95	*	*	.95
Heterosexuality	*	.89	*	*	.88
Exhibition	.87	*	*	*	.79
Autonomy	.87	*	*	*	.85
Aggression	.88	*	*	*	.94
Change	.72	*	.49	*	.87
Succorance	*	*	*	.94	.97
Abasement	-.80	*	*	.50	.90
Deference	-.91	*	*	*	.91

Table 26

Varimax Rotated Factor Matrix

Dream, Self, and Significant Other Psychological Profiles

Factor 1

Variable	Dream	Self	Other
Achievement	.40	.49	.41
Dominance	.62	.61	.83
Endurance	*	*	*
Order	*	*	*
Intraception	*	*	*
Nurturance	-.52	*	*
Affiliation	*	*	*
Heterosexuality	*	.69	*
Exhibition	.76	.88	.87
Autonomy	.81	.87	.87
Aggression	.78	.82	.88
Change	.56	.86	.72
Succorance	*	*	*
Abasement	-.43	-.63	-.80
Deference	-.89	-.82	-.91

Table 27

Varimax Rotated Factor Matrix

Dream, Self, and Significant Other Psychological Profiles

Factor 2

Variable	Dream	Self	Other
Achievement	.51	.81	.81
Dominance	*	.70	*
Endurance	*	.97	.93
Order	*	.94	.92
Intraception	.79	.78	.83
Nurturance	.75	.57	.87
Affiliation	.94	.69	.95
Heterosexuality	.74	.48	.89
Exhibition	*	*	*
Autonomy	*	*	*
Aggression	*	*	*
Change	.59	*	*
Succorance	*	*	*
Abasement	*	*	*
Deference	*	*	*

Intraception, Nurturance, Affiliation and Heterosexuality. Factor two concerns itself with more affective needs such as establishing and maintaining relationships, understanding self and others, providing emotional or material support, and responding to others.

There is no agreement of clustering between psychological profiles on factor Three (Table 28). The clustering of the dream profile variables on factor Three mirrors to a lessor extent factor One. Achievement, Dominance, Endurance, and Order are all present in factor Three (dream profile) where only Achievement and Dominance of these variables can be seen in factor One on the dream profile.

Also in factor Three, Intraception, Nurturance, and Affiliation mirror the clustering found in factor Two (on all psychological profiles) consisting of Intraception, Nurturance, Affiliation, and Heterosexuality. The profile other factor Three consists of four variables which do not appear to have any similarity to other factors.

In conclusion, the multi-variate analysis yielded two factors that were congruent over all psychological profiles (dream, self and other). Factor one appeared to be concerned with personality type, describing characteristics that are seen in the medical student population that was used in the study. The second factor concerned itself with more affective needs expressed in relationships and concern for others.

Table 28

Varimax Rotated Factor Matrix

Dream, Self, and Significant Other Psychological Profiles

Factor 3

Variable	Dream	Self	Other
Achievement	.59	*	.81
Dominance	.63	*	*
Endurance	.89	*	.93
Order	.79	*	.92
Intraception	*	.44	*
Nurturance	*	.69	*
Affiliation	*	.61	*
Heterosexuality	*	*	*
Exhibition	*	*	*
Autonomy	*	*	*
Aggression	*	*	*
Change	*	*	.49
Succorance	.74	.68	*
Abasement	.75	.58	*
Deference	*	.43	*

Table 29

Pearson-Product Moment Correlation

Normative Data Profile

	Ach	Dom	End	Ord	Int	Nur	Aff	Het	Exh	Aut	Agg	Cha	Suc	Aba	Def
Ach															
Dom	.73														
End	.72	.38													
Ord	.55	.19	.85												
Int	.39	.20	.48	.41											
Nur	.19	.08	.32	.16	.64										
Aff	.39	.33	.40	.26	.63	.74									
Het	.25	.39	.08	-.10	.27	.46	.52								
Exh	.18	.61	-.17	-.31	-.20	-.11	.08	.40							
Aut	.15	.49	-.22	-.28	-.30	-.52	-.26	.07	.57						
Agg	.13	.48	-.24	-.28	-.45	-.51	-.37	.10	.68	.69					
Cha	.09	.31	-.34	-.53	-.01	.03	.12	.42	.49	.42	.34				
Suc	-.51	-.59	-.39	-.26	-.37	-.13	-.35	-.22	-.12	-.31	.01	-.11			
Aba	-.49	-.79	-.21	-.10	-.09	/09	-.19	-.26	-.54	-.61	-.47	-.25	.66		
Def	-.17	-.52	.20	.29	.30	.48	.27	-.11	-.63	-.86	-.76	-.46	.26	.63	
	Ach	Dom	End	Ord	Int	Nur	Aff	Het	Exh	Aut	Agg	Cha	Suc	Aba	Def

Table 30

Pearson-Product Moment Correlation

Normative Data Profile
Intercorrelations >.05 level

	Ach	Dom	End	Ord	Int	Nur	Aff	Het	Exh	Aut	Agg	Cha	Suc	Aba	Def
Ach															
Dom	.73														
End	.72	*													
Ord	.55	*	.85												
Int	*	*	*	*											
Nur	*	*	*	*	.64										
Aff	*	*	*	*	.63	.74									
Het	*	*	*	*	*	*	.52								
Exh	*	.61	*	*	*	*	*	*							
Aut	*	*	*	*	*	-.52	*	*	.57						
Agg	*	*	*	*	*	-.51	*	*	.68	.69					
Cha	*	*	*	-.53	*	*	*	*	*	*	*				
Suc	-.51	-.59	*	*	*	*	*	*	*	*	*	*			
Aba	*	-.79	*	*	*	*	*	*	-.54	-.61	*	*	.66		
Def	*	-.52	*	*	*	*	*	*	-.63	-.86	-.76	*	*	.63	
	Ach	Dom	End	Ord	Int	Nur	Aff	Het	Exh	Aut	Agg	Cha	Suc	Aba	Def

CHAPTER VII

SUMMARY

Dreaming, waking and significant other psychological profiles were counterpoised in this study as variable sets consisting of 15 Need Scales as defined by the Adjective Check List. Waking reality concerns (self and significant other profiles) were not portrayed or reflected in the perceived dream profiles. Future directions exist for further research into dimensions which may have not been netted through the use of the Adjective Check List. These directions are fourfold.

1. On the premise that there are untapped dimensions not emerging through the use of the Adjective Check List, other projective instruments might be considered. Future studies might substitute the significant other profile with subject generated TAT profiles. The Rorschach test would also lend itself to the further exploration of conscious and unconscious symbolic processes.
2. Rather than utilizing significant other profiles, a study could be conducted whereby trained psychologists provide an external evaluation of both the subject and subject dreams using the Adjective Check List. A variation of this technique would require a trained psychologist or group of psychologists to evaluate the subjects personality as well as their dreams.
3. The alteration of test populations may further clarify

relationships between waking and dreaming states. Rather than the examination of a specific population (such as medical students), the examination of a broader population may result in a better defined relationship between waking and dreaming states. Another alteration of test population could be the utilization of varied psychological types as categorized in the Myers-Briggs Type Indicator. Other mechanics within the waking/dreaming relationship may be synthesized through the examination of specific psychological types.

4. The fourth possible direction for future research deals with the alteration of the time factor used in the creation of a longitudinally collected, composite dream profile. The expansion of the time variable might possibly play into the solidification of slowly emerging needs.

It is hoped that through exploring these alternative research methods, significant information concerning the functions of dreams can be determined. The research that was carried out in this study did not yield information on the specific functioning of dream but does provide a platform that can be used for future research.

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APPENDIX 1

REGISTRATION SHEET

Any U.S. student interested in participating in a dream study please sign below. This study will last the entire semester and will require the recording of dreams along with a testing instrument. In exchange for your participation, you will have scheduled access to a computerized MSKP Review course every week.

As some of you might remember from last semester, I was in the process of designing the research for my Dissertation in Psychology.

I have the basic model completed and my dissertation topic has been approved by my committee. I am now ready to carry out the research and am looking for students interested in being research subjects for my work.

As TIME seems to be a limited resource here in Grenada at St. George's University, School of Medicine, I have designed my research so that most of the work that you will be required to do is while you are SLEEPING.

I am looking for students that have some recall of their dreams. I will be providing additional training to increase your retention of dreams along with techniques for recording your dream reports.

All that is required is to record your dreams and turn them in at your appointment time during the week.

The appointment time will have a two purposes:

1. Discussing any difficulties you are having in remembering your dreams

2. Work on the MSKP Review - a computerized review preparing you for the MSKP TEST - covering all areas tested by the MSKP and taking questions from 15 years National Boards and other sources.

	LAST, FIRST NAME	SEMESTER	TELEPHONE
1.	____________________	_____	__________
2.	____________________	_____	__________
3.	____________________	_____	__________
4.	____________________	_____	__________

APPENDIX 2

PERSONAL HISTORY

1. Last, Middle, First Name
2. Age
3. Sex
4. Date of Birth
5. Semester
6. Telephone Number
7. Address
8. Race
9. Education
10. Maritial Status
11. Religion
12. Occupation
13. How many children do you have?
14. Have you ever been in therapy?
15. Are you currently in therapy?
16. How often do you recall your dreams?

APPENDIX 3
DREAM SURVEY

SEX (MALE OR FEMALE) _____

SEMESTER 1 2 3 4 9

ESTIMATE THE AVERAGE NUMBER OF HOURS OF SLEEP YOU GET PER NIGHT, TO THE NEAREST 1/2 HOUR; PLEASE CONSIDER ONLY A NORMAL NIGHT'S SLEEP?
A. 4
B. 4 1/2
C. 5
D. 5 1/2
E. 6
F. 6 1/2
G. 7
H. 7 1/2
I. 8
J. 8 1/2
K. 9
L. 9 1/2
M. 10

CONSIDER HOW GOOD YOUR SLEEP IS: WOULD YOU SAY THAT YOUR SLEEP IS USUALLY?
A. VERY RESTFUL
B. MODERATELY RESTFUL
C. MODERATELY RESTLESS
D. VERY RESTLESS

CONSIDER THE USUAL NIGHT: AFTER YOU HAVE GOTTEN INTO BED, HOW LONG WILL TAKE YOU TO FALL ASLEEP?
A. 01-05 MINUTES
B. 06-10 MINUTES
C. 11-15 MINUTES
D. 16-20 MINUTES
E. 21-25 MINUTES
F. 30-45 MINUTES
G. 46-60 MINUTES
H. 61+ MINUTES

WOULD YOU CONSIDER YOURSELF A PERSON WHO HAS TROUBLE FALLING ASLEEP?
A. EVERY NIGHT OR ALMOST EVERY NIGHT
B. ABOUT ONCE PER WEEK
C. ABOUT ONCE OR TWICE A MONTH
D. ABOUT EVERY COUPLE OF MONTHS
E. ONLY A FEW TIMES A YEAR IF EVER

IN THE COURSE OF A NORMAL NIGHT'S SLEEP, DO YOU WAKE UP

DURING THE NIGHT?
A. FOUR OR MORE TIMES
B. TWO OR THREE TIMES
C. ONCE
D. NONE

HOW LONG ARE YOU AWAKE, ON THE AVERAGE, WHEN YOU WAKE UP AT NIGHT
A. I DO NOT WAKE UP DURING THE NIGHT
B. 01-05 MINUTES
C. 06-15 MINUTES
D. 16-30 MINUTES
E. 30+ MINUTES

WHEN YOU WAKE UP IN THE MORNING, HOW LONG DOES IT USUALLY TAKE YOU TO FEEL FULLY AWAKE
A. IMMEDIATELY
B. 01-05 MINUTES
C. 06-15 MINUTES
D. 16-30 MINUTES
E. 30+ MINUTES

HOW LONG IS YOUR AVERAGE NAP
A. I NEVER TAKE NAPS
B. 05-15 MINUTES
C. 16-30 MINUTES
D. 31-60 MINUTES
E. 60+ MINUTES

HAVE YOU EVER TALKED IN YOUR SLEEP
A. YES
B. NO
C. UNKNOWN

HAVE YOU EVER WALKED IN YOUR SLEEP
A. YES
B. NO
C. UNKNOWN

WHEN YOU WAKE UP IN THE MORNING HOW DO YOU FEEL PHYSICALLY
A. EXCELLENT
B. GOOD
C. FAIR
D. POOR

WHEN YOU WAKE UP IN THE MORNING HOW DO YOU FEEL EMOTIONALLY
A. EXCELLENT
B. GOOD
C. FAIR
D. POOR

HOW OFTEN DO YOU TAKE PRESCRIBED DRUGS
A. EVERY NIGHT
B. SEVERAL TIMES A WEEK
C. ABOUT ONCE A MONTH

D. ABOUT ONCE A WEEK
E. A FEW TIME A YEAR OR LESS
F. DOES NOT APPLY

HOW OFTEN DO YOU TAKE NON-PRESCRIBED DRUGS I.E., MARIJUANA, LSD, HEROIN, UPPERS, DOWNERS ETC...)
A. EVERY NIGHT
B. SEVERAL TIMES A WEEK
C. ABOUT ONCE A MONTH
D. ABOUT ONCE A WEEK
E. A FEW TIME A YEAR OR LESS
F. DOES NOT APPLY

HOW OFTEN DO YOU TAKE SLEEPING MEDICATIONS BEFORE YOU GO TO BED?
A. EVERY NIGHT
B. SEVERAL TIMES A WEEK
C. ABOUT ONCE A MONTH
D. ABOUT ONCE A WEEK
E. A FEW TIMES A YEAR OR LESS
F. DOES NOT APPLY

HOW OFTEN DO YOU DRINK ALCOHOLIC BEVERAGES?
A. EVERY DAY
B. SEVERAL TIMES A WEEK
C. ABOUT ONCE A MONTH
D. ABOUT ONCE A WEEK
E. A FEW TIMES A YEAR OR LESS
F. DOES NOT APPLY

IS YOUR MOOD BEFORE GOING TO SLEEP?
A. PLEASANT
B. NEUTRAL
C. UNPLEASANT

DO YOU WAKE UP IN THE MORNING?
A. TO SOUND
B. TO LIGHT
C. TO TOUCH
D. TO SMELL
E. NATURALLY

DO YOU RECALL YOUR DREAMS IN SOME FORM?
A. EVERY NIGHT
B. 2 OR 3 TIMES WEEKLY
C. ABOUT ONCE A WEEK
D. ABOUT ONCE EVERY 2 WEEKS
E. ABOUT ONCE A MONTH
F. EVERY 2-3 MONTHS
G. EVERY 4-6 MONTHS
H. ONCE OR TWICE A YEAR
I. ONCE A YEAR OR LESS

DO YOU RECALL YOUR DREAMS IN THE FORM OF?
A. CLEARLY WITH GREAT DETAIL
B. MAIN PLOT WITH SOME DETAIL

C. GENERAL IDEA
D. FRAGMENTS
E. VAGUE IMPRESSIONS

ARE MOST OF YOUR DREAMS?
A. IN COLOR
B. IN BLACK AND WHITE

DO MOST OF YOUR DREAMS TAKE PLACE?
A. IN THE PAST
B. IN THE PRESENT
C. IN THE FUTURE

IN GENERAL WHAT IS THE EMOTIONAL INTENSITY OF YOUR DREAMS
A. VERY STRONG
B. STRONG
C. MEDIUM
D. WEAK
E. NONE

DO YOU HAVE DREAMS IN WHICH YOU ARE AWARE THAT YOU ARE DREAMING
A. YES
B. NO
C. UNKNOWN

WHEN YOU'RE SLEEPING DO YOU SEEM TO BE DREAMING?
A. ALMOST ALL OF THE TIME
B. MORE OFTEN THAN NOT
C. ABOUT 1/2 OF THE TIME
D. LESS THAN 1/2 OF THE TIME
E. NEVER

ARE YOU AN ACTIVE PARTICIPANT IN YOUR DREAMS? IF YOU CONSIDERED YOUR DREAMS AS A PLAY OR MOVIE, WOULD YOU HAVE AN ACTIVE ROLE IN IT?
A. IN ALMOST EVERY ONE MY DREAMS
B. MORE OFTEN THAN NOT
C. ABOUT 1/2 OF THE TIME
D. LESS THAN 1/2 OF THE TIME
E. NEVER

DO YOU MOSTLY DREAM OF?
A. FAMILIAR PERSONS
B. UNFAMILIAR PERSONS
C. UNKNOWN

ARE THE SETTINGS OF YOUR DREAMS?
A. FAMILIAR
B. UNFAMILIAR
C. UNKNOWN

DO YOUR DREAMS CONTAIN ELEMENTS OF THE PREVIOUS DAY?
A. ALMOST ALL OF THE TIME
B. MORE OFTEN THAN NOT

C. ABOUT 1/2 OF THE TIME
D. LESS THAN 1/2 OF THE TIME
E. NEVER

DO YOU HAVE DREAMS OF FRUSTRATED EFFORT, TRYING TO DO SOMETHING BUT NOT BEING ABLE TO DO IT?
A. IN ALMOST ALL OF MY DREAMS
B. MORE OFTEN THAN NOT
C. ABOUT 1/2 OF THE TIME
D. LESS THAN 1/2 OF THE TIME
E. NEVER

DO YOU DREAM OF THINGS YOU'D LIKE TO HAVE, OR ABOUT THE WAY YOU'D LIKE THINGS TO BE?
A. IN ALMOST ALL OF MY DREAMS
B. MORE OFTEN THAN NOT
C. ABOUT 1/2 OF THE TIME
D. LESS THAN 1/2 OF THE TIME
E. NEVER

DO YOUR DREAMS PRODUCE PROLONGED MOODS IN YOUR SUBSEQUENT WAKING ACTIVITIES?
A. ALMOST ALWAYS
B. MORE OFTEN THAN NOT
C. ABOUT 1/2 OF THE TIME
D. LESS THAN 1/2 OF THE TIME
E. NEVER

ARE THESE MOODS USUALLY?
A. PLEASANT
B. UNPLEASANT
C. THEY NEVER PRODUCE MOODS

ARE YOUR DREAMS USUALLY?
A. PLEASANT
B. NEUTRAL
C. UNPLEASANT

SOME PEOPLE HAVE THE SAME DREAM ON MORE THAN ONE OCCASION; ALTHOUGH MINOR PARTS MAY BE DIFFERENT, THE INDIVIDUAL DEFINITELY KNOWS THAT HE HAS HAD THIS DREAM BEFORE. DO YOU EVER HAVE DREAMS YOU'VE HAD BEFORE OR WAS THERE EVER A TIME WHEN YOU HAD REOCCURRING DREAMS?
A. YES
B. NO

ABOUT HOW OFTEN DO YOU HAVE THESE DREAMS?
A. EVERY NIGHT
B. 2 OR 3 TIMES WEEKLY
C. ABOUT ONCE A WEEK
D. ABOUT ONCE EVERY 2 WEEKS
E. ABOUT ONCE A MONTH
F. EVERY 2-3 MONTHS
G. EVERY 4-6 MONTHS
H. ONCE OR TWICE A YEAR
I. LESS THAN ONCE A YEAR

J. DOES NOT APPLY

WHAT KIND OF MOOD DO YOU ASSOCIATE WITH THESE DREAMS?
A. PLEASANT
B. NEUTRAL
C. UNPLEASANT

APPENDIX 4

DREAM RECALL

Dream recall will be divided into three periods of time:

1. The Waking State
2. The Pre-Dream State
3. The Post-Dream State

1. WAKING STATE

The waking state is that time period where the conscious mind is the primary director of your activities. Unconscious processes are secondary in nature. The following are exercises to increase dream recall during the waking state.

A. ACTIVE EXAMINATION OF YOUR BELIEFS ABOUT DREAMS

You should question the orders you are giving yourself about the dream state. See that your conscious beliefs are following your conscious desires. This active examination should be done through writing down your beliefs about dreams (interests, advantages, fears, expectations etc...) or by processing your beliefs with others.

B. EXAMINE THE MOTIVES YOU HAVE FOR REMEMBERING YOUR DREAMS

Write down your expectations in remembering your dreams. What are your motivations for remembering your dreams and what do you see as the benefits for investing your time and energy in this direction? We remember what we choose to pay attention to.

C. BECOME AWARE OF YOUR UNCONSCIOUS PROCESSES DURING THE DAY

Observe the images and thoughts that run through your mind during the day. When you are busy, stop and listen to the under-currents that are flowing through your unconscious. Freeze one of these ideas and follow that train of thought.

D. SPEND SOME PART OF THE DAY DAYDREAMING

Allow your mind to wander during the day. Close your eyes and let your mind drift. Record your images and feelings from this activity.

E. VIEW ALL EVENTS OF THE DAY AS IF YOU WERE DREAMING

Keep a log of the feelings, and the areas of inflexibility in yourself that you become aware of. Where are the areas of resistance during your waking reality and why are they there?

F. KEEP A JOURNAL OF THE ACTIVITIES, SITUATIONS AND CIRCUMSTANCES DURING YOUR WAKING REALITY

Through recording what is happening to you during your waking reality, your unconscious has a tendency to do the same during your dreaming state.

G. TALK TO OTHERS ABOUT YOUR DREAMS DURING THE DAY

By talking, reading and listening to and about dreams you are consciously validating the dream state to yourself. You are consciously directing yourself to become aware of the dream state.

H. PHYSICAL ACTIVITY

Take some physical action during your waking state based on your dreams. Create or rethink a situation. In some way incorporate your dreams into your waking reality.

I. READ OVER YOUR DREAMS DURING THE DAY

Spend some time during the day thinking over your dream from the previous night. Are the images related to experiences you are having during your waking reality?

J. MEDITATION

Meditation enhances movement among different states of consciousness, including the dream state.

K. ALTERATION OF HABITS

To increase recall, decrease the amount of alcohol that you use during the day. Change your eating habits. Rather than eating 3 large meals, take small amounts during the day. Another method is to change your sleeping patterns.

L. EASY RECALL TECHNIQUES

* Set the alarm to wake you 2 to 4.5 hours after you go to sleep
* Set the alarm to wake you 30 minutes before you normally awake
* Drink water before you go to sleep so you will have to get up during the night
* Fast for a period of time
* Use hypnosis during the day to suspend your current beliefs about your dream recall ability
* Isolate yourself from any social situations

SIGNIFICANT ATTITUDES THAT IMPROVE DREAM RECALL

A. ACCEPT AND VALUE EACH DREAM

Accept the dreams that you have regardless of how foolish or fragmented they are. Many times the total picture of a dream will be compressed into one or two images. These images may have as much significance as remembering an entire dream that is composed of different dream characters and sequences. If you remember a small fragment of a dream, this will many times lead you to remember the entire dream image.

B. MAKE A CONSCIOUS INTENT TO RECALL YOUR DREAMS

Rather than taking a passive approach to dream recall, be actively involved in the process. Expect that you will recall your dreams every night. As you go to bed tell yourself that you will remember your dreams in the morning. This will improve your ability to recall your dreams.

C. ACCEPT ALL DREAMS

If you only accept certain types of dreams as having significance and all other dreams as meaningless, the amount of dream recall will be reduced. You will screen out those dreams that you consider unacceptable.

D. APPROACH LEARNING DREAM RECALL AS A SKILL

Try not to attach any more importance to remembering dreams than any other skill or subject that you have studied. Thinking that dream recall is a special skill that is difficult and hard will result in just that. The harder you try to recall your dreams, the less recall you will have. Give your self suggestions that remembering dreams is easy.

E. LEARN RECALL AS A PARTNERSHIP

Do not punish yourself or feel guilty about your lack of recall. By taking a negative approach to dream recall, you set conditions and expectations that you will not recall your dreams. Rather than following the idea that you will not forget your dreams, try approaching dream recall from the standpoint of "I will remember my dreams".

F. WHEN YOU DON'T REMEMBER A DREAM, LET IT GO

If you don't remember your dreams, don't get upset. Any significant dream content that you may have missed will be presented again in another dream. People go through cycles in their dream recall and that might be the reason that you are not recalling your dreams.

G. EXPECT TO RECALL DREAMS WHILE YOU ARE AWAKE

Tell yourself that waking events, objects, situations and circumstances will trigger your dream recall. Expect that dreams will become conscious during the day.

H. ACCEPT DISTORTIONS THAT ARE OCCURRING IN YOUR DREAM RECALL

If your dream is a bit hazy, accept it as a valid memory of the dream regardless of any distortions you think may be occurring. This will initiate a habit of accepting all dreams and increase your recall ability.

I. DON'T COMPARE RECALL ABILITY

If you need to compare your ability to recall dreams with anybody, compare it with yourself. Comparing your recall with others will not increase your dream recall.

At best it will make you feel superior or inferior so you can beat yourself, or beat someone else.

J. THINK OF DREAMING AS RECREATION

Rather than trying to put the dream into some psychological context that must be understood, allow for a more flexible method of viewing your dreams. Think of your dreams as a free movie in which you are the star. Not only are you the star of this film, you are the director. You can do what ever you like. Look forward to a great adventure every night doing whatever you would like.

2. PRE-DREAM STATE

The Pre-Dream State is that period of time that is spent in preparation for sleeping. No new activities that require conscious functioning are usually initiated during this time period.

A. ENGAGE IN DREAM RELATED ACTIVITIES

One activity that you can engage in is to spend 15 minutes writing up the day's activities as if they were the plot of a dream.

B. EXPECT TO REMEMBER YOUR DREAMS

One method for setting up your expectations is to date your dream record with the date of the following day.

C. REVIEW PAST DREAMS

Spend some time reviewing your previous dreams. This will fix in your mind the idea that you will be engaging in activities that will increase dream recall.

D. AUTO-SUGGESTION ABOUT RECALL

Before falling asleep, tell yourself that you will have dreams and that you will awaken after any important dreams that you may have. These suggestions should be worded in a positive manner.

E. PHYSICALLY GET READY TO RECALL YOUR DREAMS

Before you retire, lay out your paper and pencil in such a way that you will be able to reach them first thing in the morning. If you will be recording dreams during the night, also have an easy method to turn on the lights.

F. STAY AWAKE TO RECORD YOUR DREAM

To keep from falling back to sleep after awakening during the night or in the morning, set a glass of water next to you so that you can take a drink. Another method is to have a small night light that you can turn on that will also provide some stimulus to keep you awake.

G. HYPNAGOGIC IMAGES

As you are falling asleep, watch the images that seem to be forming in your mind. It may take you a few nights to become aware that these images exist and can be seen.

H. REVIEW OF THE DAY

As you are falling asleep, start with the beginning of the day and review its events, step-by-step. Try to stay awake as long as possible in that state that is between being awake and being asleep.

3. POST-DREAMING

Post-dreaming is that period when the conscious mind is once again in the forefront of all activities.

ACTIVITIES TO INCREASE DREAM RECALL DURING THE POST-DREAMING STATE

A. FOLLOW THE DREAM BACKWARDS

When you awaken, you should stay relaxed with your eyes closed. Mentally run through the dream until it is fixed in your mind. To do this, think of the last image that you can remember and follow the image backwards asking yourself what happened before this situation.

B. PHYSICAL POSITION OF THE BODY

After you have reviewed one dream and have it firmly fixed in your mind, gently move over into another position that you sleep in during the night. You will find that many times being in the same position that you had a dream in will evoke the memory of the dream.

C. LOSS OF DREAM MEMORY

If you find that nothing seems to come to you, keep your eyes closed and think of people who are significant in your life. If this still does not evoke a dream memory, think of situations and events that have occurred during the last few days.

Rather than trying to determine events and situations, clear your mind and think of nothing.

If you still don't remember your dream, stay relaxed and keep your eyes closed. Watch the images that are passing through your mind. You may find that many times these images will be related to your dreams and will spark your dream memory.

D. DREAMED RECALLED

Once you have remembered a dream, it is important to tag it so that it is not forgotten. If it is at all possible, write your dream immediately after recalling it. As you are reviewing the dream, make mental tags for different sections of the dream. These tags are best remembered if they are associated with the images of the dreams that are strange or different from normal waking reality.

As you transcribe the dream, it is important to record verbal expressions that are unique: poems, numbers, and messages FIRST. Then write the rest of the dream.

Also make sure to indicate the date of the dream and any circumstances and thoughts you have about the dream.

E. NO MEMORY OF DREAMING

If you find that while still going through all of the above suggestions you can not remember your dream, there is something you can do that will help increase your dream recall.

It is important that you continue to keep your dream journal if you are remembering your dreams or not. One way that you can do this is to make up a dream and put it in your dream journal in the morning. Indicate that it is one that you have made up. You will find after a time, that if you are going to the trouble to make up a dream and write it down, your subconscious will take the cue and your dream recall will improve.

APPENDIX 5
MSKP REVIEW

```
0100 CLR: DIM NAM$(3), SE$(15), SE1$(8), MIS$(15),
RIS$(20), DIS$(15), L$(1): CO=0
0110 DIM T$(2), A$(120), B$(120), C$(120), D$(120),
E$(120), K$(1), AN1$(1)
0120 DIM U$(120), V$(120), W$(120), X$(120), Y$(120),
EXT$(12)
0130 DIM T1$(2), A1$(120), B1$(120), C1$(120), D1$(120),
E1$(120), K1$(1)
0140 DIM U1$(120), V1$(120), W1$(120), X1$(120), Y1$(120)
0150 DIM T2$(2), A2$(120), B2$(120), C2$(120), D2$(120),
E2$(120), K2$(1)
0160 DIM U2$(120), V2$(120), W2$(120), X2$(120), Y2$(120)
0170 DIM T3$(2), A3$(120), B3$(120), C3$(120), D3$(120),
E3$(120), K3$(1)
0180 DIM U3$(120), V3$(120), W3$(120), X3$(120), Y3$(120)
0190 DIM DAT1$(50), DAT2$(50), DAT3$(50), FIR$(20),
LAS$(20), CL$(9), CR$(9), FILE$(11)
0191 POKE 752, 1: POSITION 4, 10: ? "I THOUGHT YOU'D NEVER
ARRIVE ": GOTO 218
0192 FOR X=1 TO 8: SOUND 0,0,2,9: FOR W=1 TO 30: NEXT W:
SOUND 0,0,0,0: NEXT X: RETURN
0193 FOR J=1 TO P*1.7: NEXT J: RETURN
0194 FOR X=1 TO 25: POKE 755, 1: POKE 755, 3: POKE 755, 2:
NEXT X: RETURN
0195 X=INT(RND(0)*200)+50: FOR P=10 TO 0 STEP -0.2: SOUND
0,X,10,P: NEXT P: RETURN
0196 ?: ? " 1  ";A$: ?: ? " 2  ";B$: ?: ? " 3  ";C$: ?: ?
" 4  ";D$: ?: RETURN
0197 ?: IF W$<>"" THEN GOSUB 202: POKE 559, 34: INPUT L$:
? CL$
0198 ? " A  ";A$: ?: ? " B  ";B$: ?: ? " C  ";C$: ?: ? " D
";D$: ?
0199 IF D$<>"NEITHER" THEN ? " E  ";E$: ?
0200 RETURN
0201 ?: ? " A  ";A$: ?: ? " B  ";B$: ?: RETURN
0202 POKE 752, 1: POSITION 24, 22: ? "hit RETURN ";:
GOSUB 195: RETURN
0203 CLOSE #2: GRAPHICS 1: SETCOLOR 2, 0, 0: POSITION 6,
7: ? #6;"INSERT"
0204 POSITION 3, 10: ? #6;SE$
0205 POSITION 6, 12: ? #6;" DISK": ? "then ";: GOSUB 202:
INPUT L$: GRAPHICS 0: POKE 752, 1: RETURN
0206 IF T$="K" THEN POSITION 15, 0: ? " K - TYPE ": ?
0207 IF T$="C" THEN POSITION 15, 0: ? " CASE STUDY ": ?
0208 IF T$="M" THEN POSITION 15, 0: ? " MULTIPLE CHOICE ":
?
0209 IF T$="TF" THEN POSITION 15, 0: ? " TRUE FALSE ": ?
0210 RETURN
0218 POKE 65, 0: CL$=CHR$(125): CR$=CHR$(155)
0219 TRAP 220: LPRINT CHR$(29): LPRINT CHR$(27);CHR$(56)
```

```
0220 TRAP 2830: OPEN #1, 4, 0, "D: TRANS.COD"
0230 INPUT #1;TIME, ROQ, SE$, MIS$, FIR$,  LAS$,  NAM$,  TM,
IMM: CLOSE #1
0240 TM1=TM: TIME1=TIME: DIS$=MIS$: RIS$=MIS$
0250 ? CL$: FILE$(1, 8)="D: SCORE.": FILE$(9, 11)=NAM$
0260 GOSUB 203
0265 POKE 752, 1: POSITION  4,  10:  ?  "I'M  SO  VERY  GLAD
YOU'RE HERE "
0270 IF ROQ=1 THEN OPEN #2, 4, 0, MIS$: GOTO 300
0280 MIS$=DIS$: TRAP 260: MIS$(8, 8)="0"
0290 OPEN #2, 4, 0, MIS$(1, 10): MIS$(8, 8)="U"
0300 TRAP 310:  LPRINT  FIR$;" ";LAS$:  LPRINT  "SECTION  =
";MIS$: LPRINT
0310 TIME=TIME1
0320 OPEN #5, 4, 0, "D1: REMARK"
0340 IF CO=1 THEN 370
0350 MIS$(11)=".": MIS$(12, 14)=NAM$
0360 IF TM1=1 THEN OPEN #4, 8, 0, MIS$
0370 OPEN #3, 4, 0, "K: "
0380 CC=1: ? CL$
0390 REM * *
0400 FOR I=1 TO 30: GRAPHICS 0: POKE 559, 0: POKE 752, 1
0410 POKE 82, 1: POKE 702, 64: POKE 752, 1:  REM  POKE  710,
0: REM POKE 580, 1:  POKE 16, 64
0415 SETCOLOR 2, 6, 10: SETCOLOR 1, 6, 0
0420 INPUT #5;DAT1$, DAT2$, DAT3$
0430 REM SETCOLOR 4, 8, 4
0440 TRAP 960: INPUT #2;T$
0450 IF CO=1 AND TM=0 THEN 490
0460 POSITION 1, 0: ? " #  ";I;: POSITION 15, 0
0480 GOSUB 206
0490 IF T$="TF" OR T$="K" OR T$="M" THEN INPUT #2;U$, V$
0500 IF T$="C" THEN INPUT #2;U$, V$, W$, X$, Y$
0510 IF CO=1 AND TM=0 THEN 540
0520 ? U$
0530 IF V$<>"" THEN ? V$: IF W$<>"" THEN  ?  W$:  IF  X$<>""
THEN ? X$: ?: IF Y$<>"" THEN ? Y$
0540 IF T$="M" OR T$="C" THEN 590
0550 IF T$="TF" THEN 620
0560 INPUT #2;A$, B$, C$, D$
0570 IF CO=1 AND TM=0 THEN 650
0580 GOSUB 196: GOTO 650
0590 INPUT #2;A$, B$, C$, D$, E$
0600 IF CO=1 AND TM=0 THEN 650
0610 GOSUB 197: GOTO 650
0620 INPUT #2;A$, B$
0630 IF CO=1 AND TM=0 THEN 650
0640 GOSUB 201
0650 INPUT #2;K$, AN1$, AN1$, AN1$, AN1$, AN1$, EXT$
0660 IF CO=1 AND TM=0 THEN GOSUB 1900: GOTO 940
0670 ? " F  I DON'T KNOW"
0680 POSITION 5, 22: ? " WHICH  ANSWER ?      ":  POKE  559,
34: GOSUB 192
0690 IF TIME=0 THEN 820
0700 POKE 764, 255: W=0: Y=40
0710 FOR Z1=1 TO TIME
```

```
0720 IF TIME>99 THEN TIME=TIME-1
0730 IF PEEK(764)<>255 THEN 820
0740 IF TIME>99 THEN POSITION 36, 0: ? INT(TIME/60)
0750 IF TIME<99 THEN POSITION 36, 0: ? TIME-Z1
0760 IF TIME-Z1<=10 THEN W=W+1: Y=Y-1
0770 SOUND 0,Y,10,W
0780 FOR P=1 TO 180: NEXT P
0790 POSITION 36, 0: ? "  "
0800 NEXT Z1
0810 U=70: GOTO 860
0820 GET #3, U: POKE 559, 0
0830 IF U=19 AND TM<>1 THEN SOUND 0,0,0,0: GOTO 820
0840 IF TIME=0 AND U<65 OR TIME=0 AND U>70  THEN  POKE  764,
255: GOTO 820
0850 IF U<65 OR U>70 THEN POKE 764, 255: GOTO 750
0860 ? CL$
0870 IF CHR$(U)=K$ AND TM=1 THEN FOR P=10 TO  0  STEP  -0.5:
SOUND 0,150,10,P: NEXT P
0880 IF CHR$(U)=K$ AND TM<>1 THEN GOSUB 1780
0890 IF CHR$(U)<>K$ AND TM<>1 THEN GOSUB 1900
0900 IF CHR$(U)=K$ AND TM=1 THEN CC=CC+1
0910 IF CHR$(U)<>K$ AND TM=1 THEN GOSUB 1980
0920  T$="":  U$="":  V$="":  W$="":  X$="":  Y$="":  K$="":
AN1$="": EXT$="": REM AN2$="":  AN3$="":  AN4$="":  AN5$="":
EXT$=""
0930 IF IMM=0 AND K1$<>"" AND IMM=0 AND K3$<>""  THEN  GOSUB
2440
0940 NEXT I
0950 REM * * *
0960 ? CL$: CLOSE #3: CLOSE #2: CLOSE  #4:  CLOSE  #5:  POKE
559, 34
0970 IF CO=0 THEN PER=INT(CC/30*100):  ?  "YOU  GOT  ";PER;"%
CORRECT ";FIR$: FOR P=1 TO 200: NEXT P
0980  TRAP  990:  IF  TM<>1  THEN  RPER=INT(RCC/RC*100):   ?
"SECOND GUESS ";RPER;"% CORRECT  ";LAS$:  FOR  P=1  TO  500:
NEXT P
0990 TRAP 1010: IF CO=0 THEN LPRINT "YOUR PER CENT = ";PER
1000 IF CO=0 THEN LPRINT "SECOND GUESS = ";RPER: LPRINT
1010 RIS$=MIS$(3, 10): RIS$(9, 10)=STR$(PER)
1020 IF TM=1 AND CO=0 THEN 1500
1030 IF TM=0 AND CO=1 THEN TM=2
1040 CLOSE #2: GRAPHICS 1: SETCOLOR 2,  0,  0:  POSITION  1,
10: ? #6;"INSERT  MASTER  DISK":  ?  "then  ";:  GOSUB  202:
INPUT L$
1050 GRAPHICS 17: POSITION 1, 10: ? #6;"CALCULATING SCORES"
1060 TRAP 1040: OPEN #2, 4, 0, "D: PERM": X=0:  W=0:  J=PER:
P=PER
1070 TRAP 1140: INPUT #2, DAT1$
1080 IF DAT1$(1, 8)<>MIS$(3, 10) THEN 1070
1090 X=X+1: CC=VAL(DAT1$(9, 10)): Z1=CC+Z1
1100 IF CC<PER THEN W=W+1
1110 IF CC>J THEN J=CC
1120 IF CC<P THEN P=CC
1130 GOTO 1070
1140 CLOSE #2: IF X<1 THEN 1200
1145 GRAPHICS 0
```

```
1150 PRINT: ? "      OUT OF ";X+1;" STUDENT(S) ";FIR$:  ?  "
YOU DID BETTER THAN ";W;" OF THEM"
1160 POSITION 11, 8: ? "LOWEST SCORE   ";P
1170  IF  X<>0  THEN  POSITION  11,  9:  ?  "AVERAGE   SCORE
";INT((Z1+PER)/(X+1))
1180 POSITION 11, 10: ? "HIGHEST  SCORE   ";J:  ?:  POSITION
11, 12: ? " YOUR SCORE    ";PER
1190 POSITION 1, 22: ? "when  finished  ";FIR$:  GOSUB  202:
INPUT L$: ? CL$
1200 IF ROQ=1 THEN 1710
1210 GRAPHICS 17: POSITION 2, 10: ? #6;"RECORDING SCORES"
1220 IF CO=0 OR TM=2 THEN  OPEN  #2,  9,  0,  "D:  PERM":  ?
#2;RIS$(1, 10): CLOSE #2
1230  IF  CO=0  OR  TM=2  THEN  OPEN  #2,  9,  0,  FILE$:  ?
#2;RIS$(1, 10): CLOSE #2
1240   RIS$(1,   8)=MIS$(3,   10):   RIS$(9,   9)=STR$(TM1):
RIS$(10,  10)=STR$(ROQ):  RIS$(11,  11)=STR$(IMM):  RIS$(12,
15)="0000"
1250 RIS$(14, 15)=STR$(TIME1)
1260 IF TIME1>99 THEN RIS$(13, 15)=STR$(TIME1)
1270 IF TIME1>999 THEN RIS$(12, 15)=STR$(TIME1)
1280 IF  CO=0  OR  TM=2  THEN  OPEN  #2,  12,  0,  FILE$:  ?
#2;RIS$;: CLOSE #2
1290 IF VAL(DIS$(10,  10))<>9  THEN  I=VAL(DIS$(10,  10))+1:
DIS$(10, 10)=STR$(I): GOTO 1310
1300 I=VAL(DIS$(9, 10))+1: DIS$(9, 10)=STR$(I)
1310 TRAP 1040: OPEN #1, 4, 0, "D: CHECK": DIS$(8, 8)="U"
1320 TRAP 2830: INPUT #1;SE1$
1330 IF DIS$(3, 10)<>SE1$ THEN 1320
1340 CLOSE #1
1350 IF VAL(DIS$(9, 10))>0 THEN SE$(14, 15)="1A"
1360 IF VAL(DIS$(9, 10))>3 THEN SE$(14, 15)="1B"
1370 IF VAL(DIS$(9, 10))>6 THEN SE$(14, 15)="2A"
1380 IF VAL(DIS$(9, 10))>9 THEN SE$(14, 15)="2B"
1390 IF VAL(DIS$(9, 10))>12 THEN SE$(14, 15)="3A"
1400 IF VAL(DIS$(9, 10))>15 THEN SE$(14, 15)="3B"
1410 IF VAL(DIS$(9, 10))>18 THEN SE$(14, 15)="4A"
1420 OPEN #1, 4, 0, "K: "
1425 GRAPHICS 0: POKE 752, 1: POSITION 12, 9: ?  "  CONTINUE
WITH "
1430 POSITION 14, 10: ? SE$(1, 13)
1432 POSITION 12, 11: ? "                  "
1435 POSITION 12, 12: ? "  <1>   YES       "
1436 POSITION 12, 13: ? "                  "
1440 POSITION 12, 14: ? "  <2>   NO        "
1442 POSITION 12, 15: ? "                  "
1445 GOSUB 192: GET #1, U
1450 IF U<>49 AND U<>50 THEN ? CL$: GOTO 1425
1452 CLOSE #1
1455 IF U=49 THEN GOSUB 203
1460 IF U=50 THEN 1560
1500 IF TM=1 AND CO=0 THEN CO=1: CC=0:  TM=0:  ?  CL$:  GOTO
1550
1510 IF CO=1 THEN TM=TM1: CO=0
1520 IF U=49 THEN 280
1550 DIS$(8, 8)="U": DIS$(11,  11)=".":  DIS$(12,  14)=NAM$:
```

```
MIS$=DIS$: CLOSE #2: OPEN #2, 4, 0, DIS$(1, 14): GOTO 300
1560 ? CL$: POSITION 11, 10: ? " WANT TO  QUIT  ":  POSITION
17, 11: INPUT L$: ? CL$
1570 IF L$="N" THEN 1710
1580 IF L$="Y" THEN  GRAPHICS  17:  POSITION  3,  10:  PRINT
#6;"THAT'S A TAKE": CLOSE #1: CLOSE #2: CLOSE #3: CLOSE #4
1590 OPEN #1, 4, 0, "D: PERM"
1600 OPEN #2, 8, 0, "D: PERM"
1610 TRAP 1640: INPUT #1;RIS$
1620 PRINT #2;RIS$
1630 GOTO 1610
1640 CLOSE #1: CLOSE #2
1650 OPEN #1, 4, 0, FILE$
1660 OPEN #2, 8, 0, FILE$
1670 TRAP 1700: INPUT #1;RIS$
1680 PRINT #2;RIS$
1690 GOTO 1670
1700 CLOSE #1: CLOSE #2: END
1710 POKE 752, 1: CLOSE #5: POSITION 8,  10:  ?  "  BACK  TO
THE MENU "
1720 OPEN #5, 8, 0, "D: TRANS.COD"
1730                                                   PRINT
#5;TIME1;CR$;FIR$;CR$;LAS$;CR$;NAM$;CR$;TM1;CR$;IMM:   CLOSE
#5
1740 RUN "D: MENU": END
1770 REM RIGHT*
1780 GRAPHICS 1: SETCOLOR 2, 0, 0:  POKE  752,  1:  POSITION
6, 10: ? #6;"*RIGHT*": ? "  ";DAT2$;" ";FIR$
1790 P=20: SOUND 0,121,10,5: GOSUB 193
1800 SOUND 0,108,10,5: GOSUB 193: SOUND 0,0,0,0
1810 SOUND 0,96,10,5: GOSUB 193
1820 P=45: SOUND 0,72,10,5: GOSUB 193
1830 P=30: SOUND 0,96,10,5: GOSUB 193
1840 P=150: SOUND 0,72,10,8: GOSUB 193
1850 SOUND 0,0,0,0
1860 CC=CC+1: GRAPHICS 17: RETURN
1890 REM WRONG*
1900 IF CO=1 THEN GOTO 2060
1910 IF TM1=0 AND CHR$(U)="F" THEN 2060
1915 IF CHR$(U)="F" THEN 1980
1920 GRAPHICS 1: SETCOLOR 2, 0, 0:  POKE  752,  1:  POSITION
6, 10: ? #6;"*CLOSE*": ? "  ";DAT3$;" ";FIR$
1930 FOR X=1  TO  20:  SOUND  0,100,0,15:  SOUND  1,200,0,0:
SOUND 0,5,0,10
1940 J=PEEK(X): SETCOLOR 2, 0, J+4: SETCOLOR 4, 0, J+4
1950 NEXT X: SOUND 1,0,0,1
1960 FOR X=5 TO 0 STEP -0.05: SOUND 0,5,0, INT(X):  NEXT  X:
SOUND 1,0,0,0
1965 IF TM1=0 THEN 2060: REM   TEMP
1970 IF PEEK(195)=162 THEN CLOSE #3: XIO 33, #3, 0,  0,  "D:
?????U.*": CLOSE #3: OPEN #3, 4, 0, "K: "
1980 TRAP 1970: ? #4;T$
1990 IF T$="TF" OR T$="K" OR T$="M" THEN ? #4;U$;CR$;V$
2000 IF T$="C" THEN ? #4;U$;CR$;V$;CR$;W$;CR$;X$;CR$;Y$
2010     IF      T$="M"      OR      T$="C"      THEN       ?
#4;A$;CR$;B$;CR$;C$;CR$;D$;CR$;E$
```

```
2020 IF T$="TF" THEN ? #4;A$;CR$;B$
2030 IF T$="K" THEN ? #4;A$;CR$;B$;CR$;C$;CR$;D$
2040                                                         ?
#4;K$;CR$;AN1$;CR$;AN1$;CR$;AN1$;CR$;AN1$;CR$;AN1$;CR$;EXT$
2050 IF TM=1 THEN RETURN
2060 GRAPHICS 17: POSITION 5, 10: ? #6;"*ANSWER*"
2070 TRAP 2150: LPRINT "TYPE OF QUESTION = ";T$
2080 IF T$="TF" OR T$="K" OR T$="M" THEN LPRINT U$;V$
2090 IF T$="C" THEN LPRINT U$;V$;W$;X$;Y$
2100 IF T$="M" OR T$="C" THEN LPRINT "A.  ";A$:  LPRINT  "B.
";B$: LPRINT "C.  ";C$: LPRINT "D.  ";D$: LPRINT "E.  ";E$
2110 IF T$="TF" THEN LPRINT "A.  ";A$: LPRINT "B.  ";B$
2120 IF T$="K" THEN LPRINT  "1.   ";A$:  LPRINT  "2.   ";B$:
LPRINT "3.  ";C$: LPRINT "4.  ";D$
2130 LPRINT "ANSWER = ";K$;: IF CO=0 THEN LPRINT  "      YOU
SAID [";CHR$(U);"] ";FIR$
2140 LPRINT: LPRINT
2150 GRAPHICS 0: POKE 752, 1: POKE 710, 0
2160 ? U$
2170 IF V$<>"" THEN ? V$: IF W$<>"" THEN  ?  W$:  IF  X$<>""
THEN ? X$: IF Y$<>"" THEN ? Y$
2180 IF T$="M" OR T$="C" THEN 2210
2190 IF T$="TF" THEN 2220
2200 GOSUB 196: GOTO 2230
2210 GOSUB 197: GOTO 2230
2220 GOSUB 201
2230 REM:    IF AN3$<>"" THEN GOSUB 202: INPUT L$: ? CL$
2240 POKE 764, 255
2250 IF U<>70 AND T$<>"TF" THEN ?:  ?  "WHAT'S  YOUR  SECOND
GUESS ";FIR$: GET #3, V
2260 ? " * *  ";K$;"  * *  IS CORRECT": ?
2265 IF T$<>"TF" THEN RC=RC+1
2270 IF CHR$(V)=K$ THEN  RCC=RCC+1:  GOSUB  202:  INPUT  L$:
RETURN
2290 IF CHR$(U)<>"F" AND CHR$(V)<>K$ THEN  POSITION  2,  21:
? DAT1$;" ";FIR$
2300 REM IF AN2$<>"" THEN ? AN2$: IF AN3$<>"" THEN  ?  AN3$:
IF AN4$<>"" THEN ? AN4$: IF AN5$<>"" THEN ? AN5$
2310 EX=EX+1
2320 ON EX GOTO 2330, 2360, 2390, 2410
2330 T1$=T$: U1$=U$: V1$=V$: W1$=W$: X1$=X$: Y1$=Y$
2340 A1$=A$: B1$=B$: C1$=C$: D1$=D$: E1$=E$: K1$=K$
2350 GOTO 2420
2360 T2$=T$: U2$=U$: V2$=V$: W2$=W$: X2$=X$: Y2$=Y$
2370 A2$=A$: B2$=B$: C2$=C$: D2$=D$: E2$=E$: K2$=K$
2380 GOTO 2420
2390 T3$=T$: U3$=U$: V3$=V$: W3$=W$: X3$=X$: Y3$=Y$
2400 A3$=A$: B3$=B$: C3$=C$: D3$=D$: E3$=E$: K3$=K$
2410 EX=1
2420 GOSUB 202: GET #3, V: ? CL$: POKE 752, 1: RETURN
2430 REM REVIEW*
2440 FOR J=1 TO 2
2450 IF J=1 THEN T$=T1$:  U$=U1$:  V$=V1$:  W$=W1$:  X$=X1$:
Y$=Y1$
2460 IF J=1 THEN A$=A1$:  B$=B1$:  C$=C1$:  D$=D1$:  E$=E1$:
K$=K1$
```

```
2470 IF J=2 THEN T$=T2$: U$=U2$: V$=V2$: W$=W2$: X$=X2$:
Y$=Y2$
2480 IF J=2 THEN A$=A2$: B$=B2$: C$=C2$: D$=D2$: E$=E2$:
K$=K2$
2490 POKE 752, 1
2500 GOSUB 206
2510 ? U$: IF V$<>"" THEN ? V$: IF W$<>"" THEN ? W$: IF
X$<>"" THEN ? X$: IF Y$<>"" THEN ? Y$
2520 IF T$="M" OR T$="C" THEN 2550
2530 IF T$="TF" THEN 2560
2540 GOSUB 196: GOTO 2570
2550 GOSUB 197: GOTO 2570
2560 GOSUB 201
2570 POSITION 5, 22: ? " WHICH  ANSWER ?            ": GOSUB
195
2580 GET #3, U: ? CL$
2590 IF CHR$(U)=K$ THEN POSITION 2, 10: ? "YOU GOT THE
REVIEW QUESTION CORRECT  ": GOSUB 194
2600 IF CHR$(U)<>K$ THEN POSITION 2, 10: ? "YOU GOT THE
REVIEW QUESTION WRONG ": GOSUB 194: IF J=1 THEN J=0
2610 IF CHR$(U)<>K$ AND J=2 THEN J=1
2620 ? CL$: NEXT J
2630 T1$=T3$: U1$=U3$: V1$=V3$: W1$=W3$: X1$=X3$: Y1$=Y3$
2640 A1$=A3$: B1$=B3$: C1$=C3$: D1$=D3$: E1$=E3$: K1$=K3$
2650 T3$="": U3$="": V3$="": W3$="": X3$="": Y3$=""
2660 A3$="": B3$="": C3$="": D3$="": E3$="": K3$="":
RETURN
2830 CLOSE #1: CLOSE #2: ? CL$: POSITION 4, 10: ? " NEXT
FILE DOES NOT EXIST ": FOR P=1 TO 300: NEXT P: GOTO 1560
```

Appendix 6

Condescriptive

Dream Psychological Profile

Mean	Varience	Range	Kurtosis	Mimimum Value	Standard Deviation	Skewness	Maximum Value
Achievement							
07.71	21.81	15.00	-1.07	01.00	04.67	00.21	16.00
Dominance							
04.67	19.75	20.00	00.08	-6.00	04.44	-0.08	14.00
Endurance							
01.58	21.18	19.00	-0.62	-8.00	04.60	-0.10	11.00
Order							
01.25	17.46	14.00	-1.02	-7.00	04.17	-0.34	07.00
Intraception							
04.90	18.15	17.00	-0.78	-3.00	04.26	00.16	14.00
Nurturance							
01.03	35.16	25.00	-0.43	-11.00	05.93	00.04	14.00
Affiliation							
12.48	43.45	23.00	-1.03	03.00	06.59	00.42	26.00
Heterosexuality							
06.45	13.38	15.00	-0.32	-2.00	03.65	-0.46	13.00
Exhibition							
04.22	15.71	15.00	-0.42	-2.00	03.96	00.23	13.00
Autonomy							
07.87	19.44	17.00	00.02	-3.00	04.41	-0.36	14.00
Aggression							
03.22	19.58	17.00	-0.47	-4.00	04.42	00.16	13.00
Change							
04.61	15.17	17.00	00.35	-2.00	03.89	00.52	15.00
Succorance							
02.58	07.58	11.00	-0.54	-3.00	02.75	00.03	08.00
Abasement							
00.25	19.46	17.00	-0.68	-9.00	04.41	-0.06	08.00
Deference							
-3.74	22.66	21.00	00.35	-14.00	04.76	-0.47	07.00

Appendix 7

Condescriptive

Self Psychological Profile

Mean	Varience	Range	Kurtosis	Mimimum Value	Standard Deviation	Skewness	Maximum Value
Achievement							
10.32	36.42	20.00	-1.39	01.00	06.03	00.11	21.00
Dominance							
06.22	27.04	19.00	-0.49	-5.00	05.20	-0.45	14.00
Endurance							
07.48	35.92	22.00	-0.78	-5.00	05.99	-0.43	17.00
Order							
06.29	27.48	23.00	00.07	-5.00	05.24	00.07	18.00
Intraception							
12.80	29.82	20.00	-0.55	01.00	05.46	-0.58	21.00
Nurturance							
13.29	37.74	24.00	00.02	-1.00	06.14	-0.50	23.00
Affiliation							
19.35	69.17	31.00	-0.52	02.00	08.31	-0.36	33.00
Heterosexuality							
08.77	21.24	18.00	-0.49	-1.00	04.60	-0.21	17.00
Exhibition							
03.00	29.66	26.00	00.79	-11.00	05.44	-0.18	15.00
Autonomy							
03.12	21.04	21.00	00.04	-7.00	04.58	-0.03	14.00
Aggression							
-2.77	23.64	23.00	00.42	-14.00	04.86	00.11	09.00
Change							
05.96	15.56	16.00	-0.37	-3.00	03.94	-0.19	13.00
Succorance							
00.64	04.97	08.00	-0.77	-3.00	02.22	-0.04	05.00
Abasement							
-0.16	13.47	13.00	-0.64	-7.00	03.67	00.10	06.00
Deference							
00.58	31.45	22.00	-0.61	-12.00	05.60	-0.14	10.00

Appendix 8

Condescriptive

Significant Other Psychological Profile

	Mean	Varience	Range	Kurtosis	Mimimum Value	Standard Deviation	Skewness	Maximum Value
Achievement	09.90	29.89	21.00	-0.87	-2.00	05.46	-0.08	19.00
Dominance	05.90	33.02	22.00	-0.70	-7.00	05.74	-0.15	15.00
Endurance	06.83	42.14	31.00	00.95	-12.00	06.49	-0.59	19.00
Order	06.06	42.79	29.00	00.17	-9.00	06.54	00.01	20.00
Intraception	10.58	36.25	19.00	-1.31	01.00	06.02	00.16	20.00
Nurturance	12.03	50.76	27.00	-0.27	-5.00	07.12	-0.58	22.00
Affiliation	16.09	57.89	30.00	-0.72	01.00	07.60	00.17	31.00
Heterosexuality	08.19	17.29	16.00	-0.33	00.00	04.15	00.24	16.00
Exhibition	03.54	33.98	30.00	02.03	-14.00	05.83	-0.74	16.00
Autonomy	02.67	21.62	26.00	04.79	-14.00	04.65	-1.38	12.00
Aggression	-1.48	30.45	26.00	01.54	-18.00	05.51	-0.85	08.00
Change	04.71	24.54	20.00	00.04	-8.00	04.95	-0.50	12.00
Succorance	00.03	08.96	12.00	-0.39	-5.00	02.99	00.37	07.00
Abasement	-0.83	14.14	20.00	02.03	-10.00	03.76	00.36	10.00
Deference	00.29	24.34	27.00	02.83	-11.00	04.93	00.87	16.00